

MILLIMAN REPORT

CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits

Commercial and individual population, under age 65

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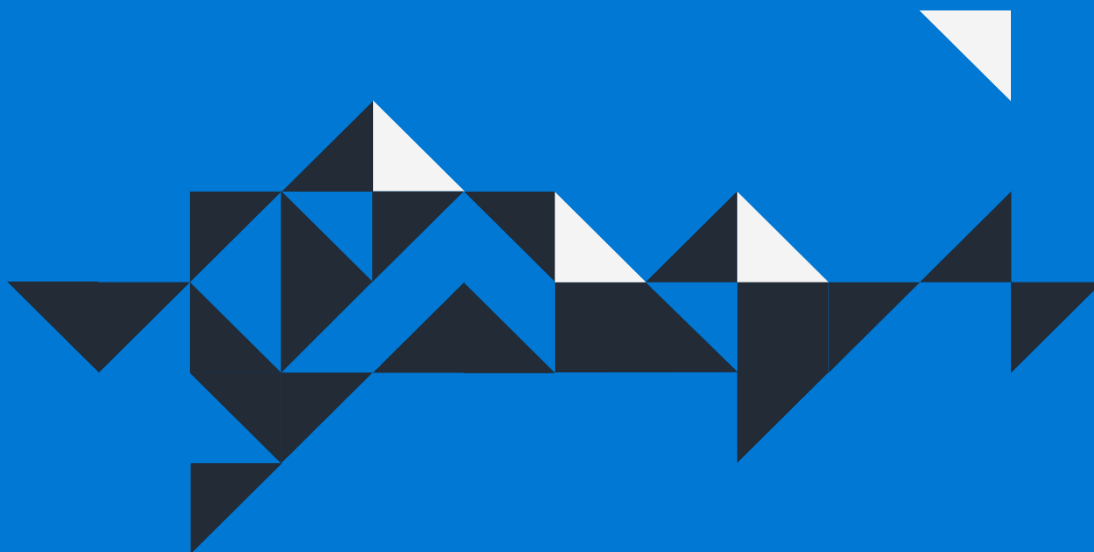


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Background

The Maryland Health Services Cost Review Commission (HSCRC) has developed methods to benchmark the cost and utilization of medical services in Maryland against other metropolitan statistical areas (MSAs) of the United States with similar population characteristics. The HSCRC engaged Abt Associates (Abt), SAG Corporation (SAG), and Milliman to assist in this benchmarking process. Under the Total Cost of Care (TCOC) Model¹, the HSCRC has expanded its evaluation of medical cost from hospital costs only to all non-pharmacy components of medical cost, which includes hospital and other facility, professional, and ancillary costs. Prescription drug costs are excluded from this analysis.

To assist HSCRC in their benchmarking, we have prepared calendar year (CY) 2022 cost and utilization summaries of members under age 65 with commercial and individual health insurance, based on the Maryland All-Payer Claims Database (APCD) data and Milliman's commercial Consolidated Health Cost Guidelines Sources Database (referred to as the CHSD) data. These results are contained in the exhibits and attachments to this document. The selection of benchmark MSAs for comparison to the Maryland results was performed in collaboration with Abt and the HSCRC. Abt uses the results described in this document and contained in the associated exhibits to create comparisons between the cost and utilization from the Maryland APCD data and Milliman's experience-based benchmarks derived from the CHSD data. These comparisons and other processes performed by Abt referenced in this report are documented separately in the Abt report, "Healthcare Cost Benchmarking for Commercial Programs: Documentation, CY 2022 Data."

In general, the results presented in this report were produced using a similar methodology as our reports summarizing each of the CY 2017 through CY 2021 cost and utilization results.² We updated the underlying data sources to CY 2022 for this report. More information on methodological changes may be found in the "Data sources and data processing" section of this document.

Summary

The HSCRC defined a set of five broad geographic Maryland regions (referred to as "MD regions"). These regions are Western, Capital, Southern, Central, and Eastern Shore.³ Additionally, the HSCRC defined a set of Maryland hospital service areas; each is called a Provider Service Area Plus (PSAP). Each PSAP is defined by the HSCRC using hospital utilization rates by Maryland ZIP Code. Each ZIP Code is allocated proportionally among Maryland hospitals based on residents' utilization patterns and drive times. Utilization patterns are based on the HSCRC's study of Maryland hospitals' fiscal year 2014 and 2015 inpatient and outpatient utilization.⁴

Milliman summarized Maryland's CY 2022 medical cost and utilization from the Maryland APCD data by ZIP Code and aggregated the results to the county and to the PSAP level using the mapping and weightings defined by the HSCRC. In parallel, for each of the five MD regions, Abt matched multiple benchmark non-Maryland MSAs based on population, morbidity (risk score), socioeconomic, demographic, and payer mix variables. To perform the matching, Abt collected the population, socioeconomic and demographic information. To facilitate this, Milliman prepared the risk score and payer mix information.

Figure 1 below shows the risk and benefit adjusted per member per month (PMPM) medical cost and utilization for each Maryland PSAP based on the CY 2022 Maryland APCD data. Costs are risk adjusted using the U.S. Department of Health and Human Services Hierarchical Condition Categories (HHS-HCC) 2017 platinum risk adjustment model and are benefit adjusted using the methodology described below in the Data sources and data processing section. The benefit adjustment adjusts for the estimated service utilization impact of variation in member

¹ See Maryland's Total Cost of Care Model: Background and Summary available at: https://hscrc.maryland.gov/Documents/Modernization/Total%20Cost%20of%20Care%20Model%20%20Background%20and%20Summary_7_26_17.pdf

² Note that no report was published for the CY 2020 data period due to the disruptions in health care utilization caused by the COVID-19 pandemic.

³ Please see the "Healthcare Cost Benchmarking for Commercial Programs: Documentation, CY 2022 Data" report published by Abt for a map defining the five MD regions.

⁴ Based on documentation of PSAP assignment provided by the HSCRC. The assignments reflect use in the HSCRC's FY2014 and FY 2015 inpatient and outpatient hospital experience data as of July 2017.

cost sharing levels by area (also known as an induced utilization adjustment). Utilization is measured using relative value units (RVUs), a case-mix and severity adjusted utilization measure that is comparable across service types.

Attachment A describes the RVU measure in more detail.

FIGURE 1: SUMMARY OF MARYLAND APCD DATA ALLOWED COSTS AND UTILIZATION (RVUS) BY MARYLAND PSAP (CY 2022) – COMMERCIAL AND INDIVIDUAL POPULATION, LIMITED TO UNDER AGE 65

PSAP	MEMBER MONTHS	ALLOWED PMPM ^A	BENEFIT & RISK ADJ. ALLOWED PMPM ^{A,B}	RVU PMPM	BENEFIT & RISK ADJ. RVU PMPM ^E
1. ANNE ARUNDEL	1,038,623	\$348.72	\$368.99	6.98	7.44
2. FREDERICK MEMORIAL	948,435	\$377.22	\$395.91	7.48	7.92
3. SHADY GROVE	924,727	\$390.85	\$403.95	7.62	7.94
4. HOWARD COUNTY	895,067	\$366.54	\$387.26	7.38	7.86
5. BALTIMORE WASHINGTON	736,268	\$374.07	\$350.51	7.20	6.81
6. SUBURBAN	719,484	\$400.54	\$467.55	7.57	8.88
7. UPPER CHESAPEAKE HEALTH	700,871	\$385.58	\$389.40	7.38	7.52
8. HOLY CROSS	662,294	\$377.32	\$387.71	7.31	7.58
9. CARROLL COUNTY	649,210	\$376.29	\$386.75	7.25	7.52
10. UM ST. JOSEPH	495,078	\$398.95	\$392.56	7.67	7.61
11. WASHINGTON ADVENTIST	450,265	\$379.90	\$363.18	7.13	6.88
12. SINAI	413,721	\$457.87	\$389.11	8.46	7.26
13. G.B.M.C.	401,815	\$387.43	\$389.38	7.62	7.72
14. PENINSULA REGIONAL	385,873	\$367.83	\$336.92	7.30	6.73
15. MERITUS	383,125	\$385.44	\$358.90	7.10	6.66
16. DOCTORS COMMUNITY	368,529	\$383.72	\$337.59	7.15	6.35
17. CHARLES REGIONAL	359,176	\$412.48	\$381.84	7.36	6.88
18. ST. AGNES	353,848	\$380.73	\$362.25	7.35	7.06
19. SOUTHERN MARYLAND	348,946	\$393.61	\$341.87	6.76	5.93
20. FRANKLIN SQUARE	327,561	\$449.89	\$374.40	7.80	6.55
APCD TOTAL^C	15,007,027	\$392.19	\$377.94	7.41	7.20

Data Source: Maryland All Payer Claims Database

(A) Allowed amount is the total amount of fee-for-service payments for covered medical services including the amount that the plan pays, the patient pays, and any other payer pays for covered services. Provider bonus, capitation, and risk sharing payments are not included. Prescription drug cost and utilization are also not included.

(B) Risk adjusted with the 2017 HHS-HCC model platinum risk scores and normalized to the statewide average risk. Benefit adjusted using the methodology described below in the Data sources and data processing section. Benefit adjusted values are normalized to a national benefit profile.

(C) APCD TOTAL includes PSAPs not displayed in Figure 1. Please see exhibits 2a and 2b for more information.

Milliman summarized cost and utilization data for the Abt-matched non-Maryland MSAs to create an aggregated experience-based benchmark for each of the five MD regions.

Figure 2 below shows Milliman's experience-based benchmark for each MD region. In addition to member months, allowed PMPM and RVUs PMPM, the risk and benefit adjusted PMPM medical cost and RVUs are shown. As in Figure 1, costs are risk adjusted using the HHS-HCC 2017 platinum risk adjustment model. The benefit adjustment adjusts for the estimated impact on utilization of member cost sharing levels by area (also known as an induced utilization adjustment). Utilization is measured using RVUs.

FIGURE 2: EXPERIENCE-BASED BENCHMARK SUMMARY OF ALLOWED COSTS AND UTILIZATION (RVUS) BY MD REGION (CY 2022) – COMMERCIAL AND INDIVIDUAL POPULATION, LIMITED TO UNDER AGE 65

MARYLAND REGION		MEMBER MONTHS ^A	ALLOWED PMPM ^B	BENEFIT & RISK ADJ. ALLOWED PMPM ^{B,C}	RVU PMPM	BENEFIT & RISK ADJ. RVU PMPM ^C
MD1	SOUTHERN MD	42,491,766	\$467.06	\$430.08	6.25	5.75
MD2	WESTERN MD	6,792,417	\$424.31	\$385.81	6.24	5.62
MD3	EASTERN SHORE	7,487,131	\$442.59	\$399.73	6.37	5.70
MD4	NORTHERN DC SUBURBS	42,181,418	\$482.44	\$455.78	5.98	5.62
MD5	BALTIMORE AREA	70,210,377	\$459.31	\$413.11	6.33	5.70
BENCHMARK TOTAL^D		96,924,169	\$441.53	\$411.56	6.04	5.61

Data Source: Milliman Consolidated Health Sources Database

(A) Member months reported are the sum of all member months included in each region. The Benchmark Total member months is less than the sum of the five regions as some MSAs were identified as part of the benchmark basis for multiple MD regions (i.e., the sum of the member months above would result in double-counting).

(B) Allowed amount is the total amount of fee-for-service payments for covered medical services including the amount that the plan pays, the patient pays, and any other payer pays for covered services. Provider bonus, capitation, and risk sharing payments are not included. Prescription drug cost and utilization is also not included.

(C) Risk adjusted with the 2017 HHS-HCC model platinum risk scores and normalized to the APCD data statewide average risk. Benefit adjusted using the methodology described below in the Data sources and data processing section.

(D) MD region benchmarks are based on a simple average of the MSAs included in each region. The Benchmark Total is based on a member-weighted average across all the MSAs included in the MD region benchmarks.

Abt's report uses the cost and utilization results in figures 1 and 2. In addition to the risk and benefit adjustment performed by Milliman and reported above, Abt normalizes benchmark cost and utilization results for differences in median income and deep poverty percentage. The impacts of these adjustments are not included in Figure 2. The final benchmark metrics shown in Abt's report are calculated as an average of the normalized metrics for each of the selected benchmark MSAs. As noted in the Background section of this report, please see the "Healthcare Cost Benchmarking for Commercial Programs: Documentation, CY 2022 Data" report from Abt for a complete discussion of the benchmark MSA selection and normalization methodology that occurs outside of the results presented here.

Summary Exhibits

Milliman prepared a set of summary exhibits for each Maryland county and PSAP. Additionally, Milliman prepared summary exhibits of the experience-based benchmark for each Maryland region. All exhibits reflect CY 2022 fee-for-service (FFS) experience, adjusted for estimated incurred but not reported (IBNR) claims, for the commercial and individual population under age 65. Outlined below is a brief description of each exhibit:

1. Maryland summary by county:
 - a. Exhibit 1a summarizes the CY 2022 Maryland APCD costs and utilization (RVUs) for medical services by county. The following information is included: member months, allowed, and allowed PMPM, RVUs PMPM, and allowed per RVU. Costs and RVUs are shown for all medical services and by major service category (inpatient facility, outpatient facility, professional/other). Risk score and benefit adjusted costs and RVUs are shown in total.⁵
 - b. Exhibit 1b summarizes the same information on a PMPM basis and illustrates risk and benefit normalization by service category and in total
2. Maryland summary by PSAP:
 - a. Exhibit 2a summarizes the CY 2022 Maryland APCD costs and utilization (RVUs) for medical services by PSAP. Each PSAP includes the membership, cost, and utilization for each ZIP Code

⁵ By normalizing RVUs by risk score, we assume that the risk score relationships capture case-mix and utilization differences, but not differences in case-mix adjusted unit price.

within the PSAP. Some ZIP Codes are split between multiple PSAPs using the weighting provided by the HSCRC.

- b. Exhibit 2b summarizes the same information on a PMPM basis and illustrates risk and benefit normalization by service category and in total
3. Benchmark summary by MD regions and MSA: Exhibits 3a and 3b mirror exhibits 1a through 2b but show the overall benchmark totals and each MD region's benchmark. Each MD region's benchmark is an aggregate of the adjusted MSAs as selected by the HSCRC and Abt. Results reflect the normalized CY 2022 utilization and costs for medical services from Milliman's benchmark data sources.
 - a. The State of Maryland benchmark is the overall member-weighted average of all the normalized benchmark MSAs selected for inclusion in any of the five MD regions' benchmarks.
 - b. Each of the five MD regions' benchmarks are simple averages of the selected and normalized MSAs for each region.

Data Sources and Data Processing

SUMMARY OF CHANGES FROM PRIOR REPORTING

This section summarizes methodological changes between this and prior reporting. The purpose of these descriptions is to permit the reader to better understand the similarities and differences between annual reports.

These changes are discussed in more detail in the following subsections.

1. Changes between the 2021 and 2022 processing:
 - a. For the 2022 reporting process, the APCD processing was completed in collaboration with SAG. SAG received claims data from HSCRC and prepared the raw data for processing by Milliman's HCG Grouper and GlobalRVUs. SAG also provided Milliman with summary data for reconciliation and data quality review. More information on these Milliman products may be found below in the Service Category Assignment and Unit Price Normalization sections below, and Appendix F.
 - b. Per direction from HSCRC, SAG relied on the "versioned" APCD data as the starting data source for their processing. In prior years, HSCRC has directed Milliman to use the "unversioned" data source as the base data source. See more information on the "versioned" and "unversioned" data sources below.
 - c. We made annual updates to the risk normalization factor, completion factors, and teaching cost estimates.
 - d. For federal fiscal year (FFY) 2022 (i.e., the year ending September 30, 2022), CMS made significant revisions to the mapping from ICD-10-CM (diagnosis) codes to condition categories. In prior years, the mapping update had been restricted to more minor revisions and the incorporation of changes to diagnosis codes (e.g., new codes being added).⁶

Because of this change, we have applied the FFY 2021 diagnosis code to condition category mapping (i.e., the mapping from the latest version of the 2020 HHS-HCC risk score model) to our CY 2022 claims data by first mapping the claims' diagnosis codes from a CY 2022 basis to a FFY 2021 basis. We then apply our standard methodology, mapping these diagnosis codes from a FFY 2021 basis to the condition categories used in the HHS-HCC model.

⁶ See, for example the August 2021 revisions reported here: <https://www.cms.gov/sites/default/files/2022-04/CY2021-DIY-instructions-03.31.2022-FINAL.pdf>

- We refer the reader to prior version of this report (e.g., “CY 2021 Milliman benchmark and Maryland All-Payer Claims Database cost and utilization exhibits”) for more information on changes that have been made over the years that this report has been published.⁷

MARYLAND APCD DATA

Maryland’s 2022 APCD data is used to calculate the 2022 Maryland commercial and individual medical cost and utilization. The 2017 HHS-HCC risk score assignment using the APCD data suppresses secondary ICD-10-CM (diagnoses) codes from the professional claims dataset. Results including all diagnosis codes from the professional service claims dataset are included in the appendices.⁸ Milliman otherwise processed the APCD eligibility and detailed claims information and calculated metrics consistent with the 2022 Milliman Benchmark Database. Also as above, diagnosis codes from the claims data are mapped to a FFY 2021 basis and then are categorized for risk adjustment using the 2020 hierarchical condition category (HCC) ICD-10-CM mappings, which include ICD-10-CM codes through FFY 2021 (i.e., through September 30, 2021). The results of this mapping are then employed in the 2017 risk adjuster. The data used in this analysis are limited to commercial and individual members under age 65.

Milliman worked with the HSCRC and SAG to perform the following steps:

- Import APCD data:** Import APCD data and process the eligibility and detailed claims data. We utilized the data dictionaries, guidance, and other information about the Maryland APCD data provided by the HSCRC.
- Limit the APCD data to commercial and individual experience:** Limit the APCD data to commercial and individual experience using the “market_segment” field. Specifically, we limit the APCD data to the subset listed below:

FIGURE 3: MEMBER MONTHS INCLUDED BY “MARKET_SEGMENT” (CY 2022 MARYLAND APCD)

MARKET_SEGMENT	DESCRIPTION	INCLUDED MEMBER MONTHS BY MARKET_SEGMENT
3	Individual Market (not sold on MHBE)	762,170
5	Private Employer Sponsored or Other Group	4,164,838
7	Public Employee – Other	6,285,991
8	Small Business Health Options Program (SHOP) not sold on MHBE	2,342,146
A	Student Health Plan	162,926
B	Individual Market (sold on MHBE)	1,241,090
C	Small Business Health Options Program (SHOP) sold on MHBE	2,405
Missing	Other enrollment months for members identified for inclusion	46,105
Total Included		15,007,671

Individual and ASO experience are excluded for the purpose of reconciliation to financial statements (see below). Non-commercial and non-individual benefit plans are excluded: Medicaid, Medicare Advantage, and Medicare Supplement. Additionally, we understand that some self-funded employers do not submit experience data to the Maryland APCD, and therefore are not included in our APCD summaries. In our prior reports for CY 2017 and CY 2018, FEHBP claims and membership were excluded for Aetna Health, Inc. and Aetna Life Insurance Co. because Aetna stopped reporting FEHBP data to the APCD from October 2017 onward, and therefore the available Aetna FEHBP experience was incomplete. The primary remaining contributors of this data, CareFirst Blue Choice, Inc., CareFirst of Maryland, Inc., and Group Hospitalization

⁷ The 2021 version of the report is available here: <https://www.milliman.com/en/insight/cy-2021-milliman-benchmark-and-maryland-all-payer-claims-database-cost-and-utilization-exhibits>

⁸ Please see Appendix E for summary results which include secondary diagnoses from the professional service claims dataset. Results in Appendix E are otherwise processed in the same manner as results in Appendix C and as set out in this document.

and Medical Services, Inc. did not report FEHBP experience in CY 2019, CY 2021, or CY 2022. Unlike prior years, exclusion of FEHBP claims and membership (market_segment = "6") was not necessary as no such data appeared in the APCD.

3. **Reconcile and validate the APCD data:** Review the APCD data for reasonableness and compare the medical code values with current coding standards for validity and consistency. We did not audit the APCD data. To reconcile the APCD data, we compared the commercial enrollment and paid claim cost amounts for each APCD contributor to readily available carrier financial statement reports for the State of Maryland. We worked with the HSCRC to exclude payers with incomplete or invalid APCD data submissions.
4. **Complete the APCD data for IBNR:** Calculate and apply completion factors for IBNR amounts. The CY 2022 APCD data has three months of runout, so we reviewed the completion patterns for the prior APCD data sets and developed an overall CY 2022 completion factor of 0.9813 (i.e., we estimate that the data is 98.13% complete). We applied the completion factors to the allowed, utilization, and RVU amounts.
5. **Assign metrics:** Process the Maryland APCD data and assign analytic measures using:
 - a. The Milliman Health Cost Guidelines™ (HCG) Grouper™ to assign service category and standard utilization counts,
 - b. The Milliman GlobalRVUs™ to assign RVUs to all medical services, and
 - c. The 2017 HHS-HCC platinum risk score model to assign risk score.

Additionally, benefit adjustment factors were assigned based on the observed average member cost sharing levels to adjust for the estimated impact of benefit levels on member utilization.

6. **Remove estimated teaching costs:** Remove teaching costs from the detailed APCD data using the hospital identifier in the APCD data and the HSCRC's estimate of hospital teaching costs per bed day. The HSCRC provided the estimated teaching costs per inpatient bed day for each Maryland hospital. These teaching costs were assigned for all inpatient bed days except residential treatment, normal newborn, and skilled nursing days.
7. **Develop cost summaries:** Tabulate results by area and service category. The area-level results include county- and PSAP-level summaries. Cost and utilization are reported by service category. Risk and benefit adjusted costs and RVUs are calculated overall for each area.

Outlined below are the defects we found with the APCD data, and how they were resolved:

1. **Incomplete data for some contributors:** As discussed above, we compared the commercial membership and costs for each contributor to readily available financial reports. We worked with the HSCRC to review inconsistencies and the HSCRC determined the final set of payers' APCD experience to include. Kaiser Permanente was not part of the 2018 Maryland APCD data set we received, and has continued to be excluded from subsequent analyses including CY 2022 due to data quality issues.
2. **Comparison to NAIC statements:** Milliman compared APCD data to National Association of Insurance Commissioners (NAIC) Annual Statements for the Year 2022 and NAIC 2022 Supplemental Health Care Exhibit (SHCE) reports. The results of these comparisons are included in Attachment B-1. The primary purpose of these comparisons is to understand the completeness of carriers' APCD data submission and to help inform the HSCRC in their discussions with carriers. As a result of the lack of agreement between these data sources, additional information was used to reconcile the APCD data used in our processes. See (3), below, for more information.
3. **CareFirst reconciliation:** Related to (2), CareFirst's APCD experience (including the data for CareFirst BlueChoice, Inc., CareFirst of Maryland, Inc., and Group Hospitalization & Medical Services, Inc.) does not reconcile to their NAIC Annual Statement for the Year 2022 or their NAIC 2022 SHCE report. For these largest contributors to the APCD, the total paid dollars reported in the APCD data is approximately 1% lower than the paid amounts in the NAIC Annual Statement after accounting for prescription drug rebates. In contrast, reported member months in the APCD data are 5% higher than the member months reported in the

NAIC statement. The CareFirst organizations represent approximately half of the total paid dollars included in the APCD data and the results in this report are sensitive to errors contained in this data.

- a. In the past, the HSCRC worked directly with CareFirst to reconcile the APCD data to CareFirst's internal reporting, and the findings of this reconciliation process were implemented into the processing of the APCD data for this report.
 - b. Like the CY 2021 reporting, for this processing cycle, the HSCRC provided Milliman with summary reports of CareFirst's 2022 allowed dollars which Milliman reconciled to while developing this report's APCD results. The CareFirst allowed dollars included in the APCD are 0.1% less than the amounts reported in the CareFirst summary reports and the APCD included member months are 2.6% greater.
4. **Incomplete ICD-10-PCS (procedure code) data:** The APCD contained only procedure codes in the first position and did not contain any secondary procedure code information. This defect resulted in Milliman being unable to reliably assign APR DRG groupings and, instead, relying on the APR DRGs provided by the HSCRC with limited review. It is our understanding that the APR DRGs supplied by the HSCRC were assigned based on claims data which included secondary procedure codes. This understanding is supported by our review of the supplied data and the observed distribution of APR DRGs.
 5. **Missing Subscriber IDs, maternity claims, and newborn claims and enrollment:** In prior years, where a maternity claim indicated a newborn and a subscriber ID did not include an associated newborn, Milliman added a newborn eligibility record to the enrollment dataset. Additionally, where no newborn claim was found, the maternity claim was assumed to be a combined mother and baby claim, and RVUs were added to the maternity claim to account for the utilization associated with the newborn.

For the 2022 reporting results, it was not possible to link newborns' enrollment or claims to the mother's maternity claim using a Subscriber ID. This difference may result in too many newborn-associated RVUs being added to the maternity claims. Moreover, because newborn enrollment records were still present in the data, but we were unable to link them with maternity or newborn claims, we did not add any newborn enrollment to the enrollment dataset. The following table summarizes our adjustments to the maternity claims. Note that the summary is based on claims before the application of the exclusions documented in Attachment B.

FIGURE 4: COUNT OF NEWBORN AND MATERNITY CLAIMS

CLAIM OR ENROLLMENT CATEGORY	COUNT OF CLAIMS
Maternity claims	11,199
Newborn and neonate claims in data	1,592
Newborns added (i.e., maternity claims with added RVUs)	11,841
Newborns and Neonates per Maternity Claim	1.20

Based on a benchmark rate of 1.03 babies per mother from the Milliman Health Cost Guidelines, this may represent an overstatement of newborns of approximately 16%. However, because of the low average service intensity of newborn claims, we estimate that this amounts to an overstatement of less than 0.02 total RVUs PMPM, or a potential RVU overstatement of 1.7% for inpatient services.

6. **Risk score decreases between 2021 and 2022:** Risk scores have declined between the 2021 and 2022 results. We have investigated this decline to rule out causes including the back-mapping of diagnosis codes

from CY 2022 to FFY 2021. We have found that the observed risk score reductions have varied across two age cohorts:⁹

- a. Individuals aged 1 to 64, inclusive, have had risk scores decline by an average of 2.8%. We have reviewed the matching of claims records to enrollment records and exposure period per member and have not identified significant changes from prior years. After comparison to the benchmark results, a review of PSAP-level changes, and discussion with HSCRC, we have concluded these reductions may be reasonable.
- b. Individuals of age zero (i.e., born in 2022) have had risk scores decline by an average of 36%. Based on comparisons to prior results and an analysis of the claims data available for these members, we believe this decline is attributable to a significant decrease in the number of newborn claims reported in the APCD. Missing newborn claims results in a reduction in the HHS-HCC risk score, and we believe the reductions are attributable to this.

Because of the possible sensitivity of our results to risk score changes, we have sensitivity tested the impact of a uniform underestimate of risk scores for newborns on a PSAP basis. This test was performed by artificially increasing all newborn risk score by a factor of 1.56 (i.e., $1 / (1 - 0.36)$). Based on this analysis, it appeared that the PSAP-level results and rankings were not heavily impacted by a uniform underestimate of newborn risk scores.

Attachment B-1 shows our comparison of the Maryland APCD data with CY 2022 financial statement data. Attachment B-2 details the exclusions applied to the APCD data.

Figure 5 below shows the starting allowed amounts and the allowed amounts added for the IBNR amounts.

FIGURE 5: SUMMARY OF MARYLAND APCD DATA ADJUSTMENTS

ADJUSTMENT	ALLOWED	PERCENT OF TOTAL
Total medical claims	\$ 18,600,330,456	100.0%
Payer, line of business, and data quality exclusions	12,766,381,342	68.6%
Commercial and Individual Subtotal	\$ 5,833,949,114	31.4%
+ Estimated IBNR	111,127,137	
- Estimated Teaching Costs	59,388,454	
= Amounts in Summaries	\$ 5,885,687,797	

COMMERCIAL EXPERIENCE-BASED BENCHMARK DATABASE

We developed the benchmark cost and utilization metrics from the 2022 Milliman CHSD. The CHSD contains enrollment and claims cost experience for multiple contributors including insurance companies, third party administrators (TPAs), and large employers across the United States. For CY 2022, the experience for approximately 70 million commercial and individually insured individuals is available nationwide. We processed the CHSD eligibility and detailed claims information, and using a process consistent with the process applied to the Maryland APCD data we used:

7. The Milliman HCG Grouper to assign service category and standard utilization counts,
8. The Milliman GlobalRVUs to assign RVUs to all medical services, and

⁹ Note that the reductions in risk scores discussed here are on a pre-exclusion basis. I.e., while we have restricted the analysis to individuals of age 64 or less, we have not excluded members enrolled in other excluded cohorts (e.g., FEHBP enrollees who are 64 years old or younger).

9. The 2017 HHS-HCC platinum risk score model¹⁰ to assign risk scores.

Additionally, benefit adjustment factors and teaching cost adjustment were applied to the CHSD using a process consistent with the Maryland APCD data. Teaching costs were assigned based on MSA-level per day averages developed by the HSCRC, rather than by hospital, because hospital-specific identifiers were not readily available in the CHSD.

The enrollment, risk score, cost, and utilization metrics were summarized by the MSA of the individual's residence.¹¹ For this analysis, the benchmark data is limited to commercially insured individuals under age 65. The reported allowed amounts reflect CY 2022 dates of service and are adjusted for the estimated IBNR claims costs, based on claims completion patterns in the data.

DEFINITION OF COST

For the purposes of this analysis, cost refers to the allowed FFS payments to providers including primary insurer payments, member payments, and payments from secondary sources of coverage. Payments outside of the administrative claims data are not included. Specifically, capitation, bonus or provider risk sharing settlement payments and refunds are not included.

SERVICE CATEGORY ASSIGNMENT

Service category was assigned using the Milliman HCG Grouper software. The HCG Grouper assigns each claim service line to a Health Cost Guidelines (HCG) service cost category based on the medical coding on the claim. In general, the following claims elements are used to assign service categories:

10. Inpatient: Inpatient facility claims are identified based on the presence of room and board revenue codes and are categorized based on the diagnosis related group (DRG) present on the claim. When DRGs are unavailable, ICD diagnosis codes, ICD procedure codes (where available, see discussion above), and revenue code information is used instead.
11. Outpatient: Outpatient facility claims are identified based on the presence of revenue codes on the claim or based on the provider type (e.g., ambulatory surgical center). Outpatient claims are categorized primarily based on the revenue codes and Healthcare Common Procedure Coding System (HCPCS) or Common Procedure Terminology (CPT) codes on the claim.
12. Professional/other: Professional/other claims are identified based on the lack of revenue codes or based on the provider type. Physician revenue code line items billed as part of a facility claim are categorized as professional/other. Professional/other claims are categorized primarily based on the HCPCS/CPT code, place of service, and provider type (e.g., home health provider) information.

RISK SCORE NORMALIZATION

Risk scores were assigned using the 2017 HHS-HCC platinum risk score model. We understand that the HSCRC selected the HHS platinum risk score model for the following reasons:

13. The model is publicly available,
14. The model is intended to be used on individual and small group populations,
15. The model is concurrent (i.e., it predicts costs for the same time period as the diagnosis collection period),
16. The model is diagnosis-based (i.e., does not require prescription drug data), and
17. The model reflects an average member cost sharing of approximately 90%, which is similar to being calibrated on allowed cost and is generally consistent with the relatively rich benefit levels found in employer sponsored health plans.

¹⁰ Because the 2018 and newer HHS-HCC models require prescription drug data and Milliman has not processed or validated that data for the Maryland APCD, the 2017 HHS-HCC model was used for 2022 medical claim data risk adjustment. The 2017 HHS-HCC model requires only member demographic and diagnostic information.

¹¹ For some MSA-level results, CHSD contributor data was scaled to comply with contributor data use limitations.

The HHS platinum risk scores predict aggregate costs for all services, not costs by service category. However, we use the risk scores to normalize allowed cost and utilization (RVUs) for each major service category (inpatient, outpatient, and professional/other). Caution should be used when interpreting these results because costs by service category may not vary linearly with risk score.

UNIT PRICE NORMALIZATION

Case mix was measured using the Milliman GlobalRVUs™ and Milliman Resource Based Relative Value Scale for Hospitals™ (RBRVS for Hospitals™) to assign RVUs to inpatient, outpatient, and professional/ancillary services. RVUs represent the relative amount of work required for each service. Dividing allowed charges by RVUs yields a conversion factor that measures the relative case mix and severity adjusted reimbursement. An area with a higher conversion factor has higher reimbursement per unit of work than an area with a lower conversion factor.

The inpatient RVUs are assigned based on the All-Patient Refined (APR) DRG and length of stay of each admission. The outpatient RVUs are assigned based on the HCPCS/CPT code, modifier, and unit coding for each service line. The professional RVUs are assigned based on the HCPCS/CPT code, modifier, unit coding, and place of service for each service line.

Because the CHSD is comprised of multiple contributors, we reviewed the data quality for each contributor. Some contributors are excluded based on this review. For example, we excluded contributors when the International Classification of Diseases (ICD) coding was not complete enough for DRG assignment. Additionally, we reviewed the data quality for specific service categories and if insufficient information was available to assign RVUs accurately, we imputed RVUs based on the provider type and payment information for these services. For example, we imputed RVUs when specific outpatient service categories had HCPCS/CPT codes and modifiers that were not reliably populated.

Assignment of RVUs for home health services was based on high-level assumptions because detailed coding was not consistently available in the Maryland APCD data and the CHSD. This limits the accuracy of the RVUs and unit price results for this service category. Skilled nursing facility (SNF) RVUs were assigned based on length of stay.

PLAN BENEFIT NORMALIZATION¹²

We have developed plan benefit normalization factors to account for allowed cost and utilization differences caused by plan design. The allowed PMPM cost factors normalize both utilization and unit price. The RVU PMPM factors normalize utilization and service intensity, but not unit price. The plan benefit factors were developed as follows:

18. We calculated average coinsurance at the employer group and product level using the 2017 CHSD benchmark data.¹³ This process effectively assumes that all members with the same product and employer have the same benefit levels, which is a simplification.
19. The plan benefit factors are calculated as the ratio of the risk adjusted allowed amount for each coinsurance level to the total risk adjusted amount. These factors are calculated for both allowed dollars and RVUs and by inpatient, outpatient, and professional service categories separately.
20. We reviewed the results with the HSCRC and made one smoothing adjustment: the coinsurance 95% plan benefit factor for professional services was increased by refining the data contributors included in the calculation.

Figure 6 below shows the plan benefit factors based on the 2017 CHSD benchmark data.

¹² Benefit normalization factors presented in this report may show slight differences from those published by Abt due to the order in which results were summarized for the PSAP exhibit. Milliman's benefit normalization factor is calculated based on the average paid to allowed ratio for each PSAP whereas Abt's benefit normalization factor is calculated for each ZIP Code and aggregated to the PSAP level.

¹³ We have revisited but not adjusted these factors in the interest of preserving the ability to compare risk and benefit adjusted results across time (e.g., comparing results in the 2021 report to those in this 2022 report).

FIGURE 6: BENCHMARK PLAN BENEFIT FACTORS - INPATIENT, OUTPATIENT, AND PROFESSIONAL COINSURANCE RANGE COMMERCIAL POPULATION, ALL MSAS, LIMITED TO UNDER AGE 65

2017 MILLIMAN BENCHMARK (NATIONWIDE) PLAN COINSURANCE RANGE	PLAN BENEFIT FACTORS					
	IP	RVUS OP	PROF	IP	ALLOWED OP	PROF
95%+	1.142	1.061	1.070	1.216	1.063	1.050
85%-95%	1.043	1.039	1.032	1.054	1.037	1.046
75%-85%	0.992	0.987	0.989	0.973	0.995	0.986
65%-75%	0.850	0.910	0.942	0.821	0.895	0.934

To apply the normalization factors, we calculated the average overall coinsurance by area and interpolated between the plan benefit factors. For example, (values are illustrative):

1. For an MSA, suppose the average overall coinsurance is 84% and the risk adjusted inpatient (IP) allowed PMPM is \$100.00
2. We interpolate from midpoint to midpoint:
 - a. Midpoint of range [85% - 95%] = 90% (high bound),
 - b. Midpoint of range [75% - 85%] = 80% (low bound),
 - c. The weight given to the factors in the [85% – 95%] range is $(4 \div 10)$ which is calculated as $(84\%-80\%) \div (90\% - 80\%) = [(actual\ overall\ coinsurance) - (low\ bound)] \div [(high\ bound) - (low\ bound)]$, and
 - d. The weight given to the factors in the [75% – 85%] range is $(6 \div 10)$ which is calculated as $1 - (4 \div 10)$.
3. The plan benefit factor is $[(4 \div 10) \times (1.054)] + [(6 \div 10) \times (0.973)] = 1.0054$.
4. The plan benefit adjusted IP allowed is calculated as $(risk\ adjusted\ IP\ allowed\ PMPM) \div (interpolated\ plan\ benefit\ factor) = \$100 \div 1.0054 = \$99.46$.

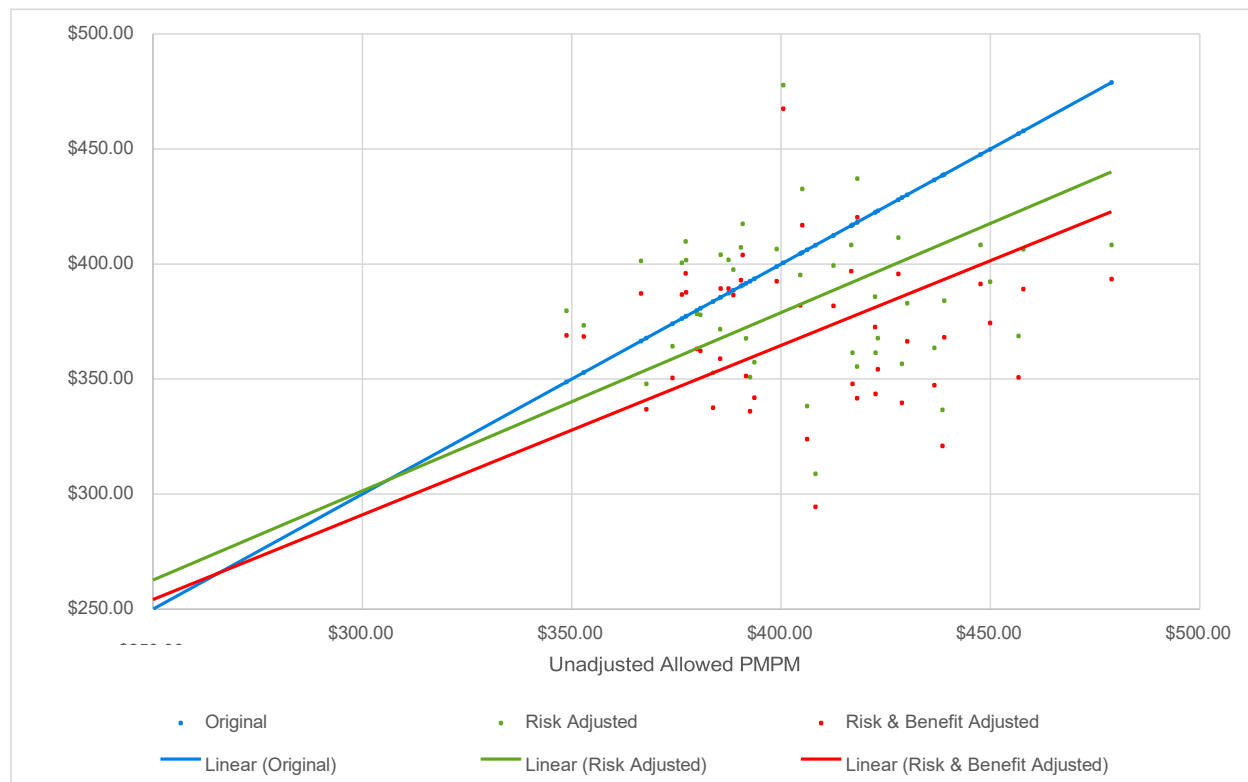
Using the benefit factors developed from the CHSD, we have calculated the benefit normalization factors by area for both the CHSD benchmark results and the Maryland APCD data.

Figure 7 below shows the impact of risk and plan benefit adjusting the allowed PMPMs on the 2022 CHSD benchmark MSAs:

1. The blue line is the original allowed PMPM,
2. The green line is the risk adjusted allowed PMPM, which has a flatter slope than the original unadjusted allowed PMPM line, and
3. The red line is the risk and plan benefit adjusted allowed PMPM.

The horizontal axis is the unadjusted allowed PMPM and the vertical axis is the adjusted allowed PMPM (i.e., risk adjusted for the green series and line or risk and benefit adjusted for the red series and line). For the original series (in blue), as no adjustment is applied to allowed dollars, the unadjusted and adjusted amounts are always equal.

FIGURE 7: SCATTERPLOT OF APCD DATA ALLOWED PMPM FOR EACH PSAP, RISK ADJUSTED ALLOWED PMPM, AND RISK & PLAN BENEFIT ADJUSTED ALLOWED PMPM, FROM BENCHMARK EXHIBIT 2 (CY 2022)



This figure shows that after normalizing for risk score, the allowed PMPM moves towards the average allowed PMPM across all areas with limited exceptions – resulting in a more horizontal linear fit line. The results are similar for RVUs PMPM, but the benefit normalization has a less significant effect in that case.

Data Reliance and Limitations

The 2022 benchmark and Maryland APCD data processed and summarized data have been prepared for the internal use of the Maryland HSCRC and Abt Associates. This information is intended solely for educational purposes and presents information of a general nature. It is not intended to guide or determine any specific individual situation and persons should consult qualified professionals before taking specific actions. Milliman does not intend to benefit or create a legal duty to any third-party recipient of its work.

In preparation of our analysis, we relied upon the accuracy of data and information gathered from or provided to us by the Centers for Medicare and Medicaid Services (CMS), HHS, and our data partners. We have not audited this information, although we have reviewed it for reasonableness. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

We have also relied on the data and other information provided by the HSCRC for this analysis. We have performed a limited review of this data and other information and checked for reasonableness and consistency. We have not found material defects in the data or information used other than those described in this report, which also describes how those defects were addressed to enable this analysis to be reliably performed. If there are other material defects in the data or other information, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of this assignment.

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. Peter Hallum, Mark Franklin, Lu Miao, and Charlie Mills are members of the American Academy of Actuaries and meet the qualification standards for performing the analyses in this report.

List of Attachments

Exhibits 1 - 3: APCD and Benchmark Experience Summaries

Attachment A: Milliman Whitepaper: Milliman GlobalRVUs

Attachment B: APCD Data RECONCILIATION AND EXCLUSIONS

Attachment C: Exhibits 1 – 3, APCD and Benchmark Experience Summaries (Inclusive of SECONDARY PROFESSIONAL Claims diagnoses)

Solutions for a world at risk™

Milliman leverages deep expertise, actuarial rigor, and advanced technology to develop solutions for a world at risk. We help clients in the public and private sectors navigate urgent, complex challenges—from extreme weather and market volatility to financial insecurity and rising health costs—so they can meet their business, financial, and social objectives. Our solutions encompass insurance, financial services, healthcare, life sciences, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

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Glossary of Terms

TERMS AND DESCRIPTIONS

Allowed PMPM – This is calculated as (annual allowed total) ÷ (annual member months).

Annual Admits per 1,000 – Calculated as (annual admit counts) ÷ (annual member months) x 12,000.

Annual Utilization per 1,000 – Calculated as (annual utilization counts) ÷ (annual member months) x 12,000. The utilization measure varies by service type (e.g., days, visits, procedures).

APCD – Maryland's All Payer Claims Database.

Average Allowed per Service – Calculated as (annual allowed total) ÷ (annual utilization counts). The utilization measure varies by service type (e.g., days, visits, procedures).

Average Length of Stay – Calculated as (annual day counts) ÷ (annual admit counts).

Average Patient Pay – Calculated as (annual patient paid total) ÷ (annual utilization counts). The utilization measure varies by service type (i.e., days, visits, procedures).

Benefit Normalization Factor – Benefit richness factor based on member coinsurance. A higher factor indicates richer benefits and higher expected utilization.

CHSD – Milliman's Consolidated Health Cost Guidelines (HCGs) Sources Database (CHSD): A comprehensive, longitudinal, health care experience data containing detailed enrollment and medical claims data.

COB PMPM – Coordination of benefit claims allowed dollars and it is calculated as (annual allowed totals for COB claim type) ÷ (annual member months).

Diagnosis and Diagnosis Code – ICD-10-CM diagnosis code.

Paid PMPM – Calculated as (annual paid total) ÷ (annual member months).

Patient Pay PMPM – Calculated as (annual patient paid total) ÷ (annual member months).

Patient Pay Utilization per 1,000 – Calculated as (annual utilization counts where patient paid) ÷ (annual member months) x 12,000. The utilization measure varies by service type (e.g., days, visits, procedures).

PSAP – Provider Service Area Plus: each PSAP is a hospital service area made up by a group of ZIP Codes. If two or more hospitals shares a ZIP Code, the experience for the ZIP Code is allocated between the hospitals.

Risk Score – 2017 model HHS-HCC Platinum risk score (calculated based on 2022 diagnosis and membership information).

RVU – Relative Value Unit is a measure for the care severity and is comparable across all service categories.

RVU PMPM – This is calculated as (annual RVU total) ÷ (annual member months).

Unit Price – This is calculated as (annual allowed total) ÷ (annual RVU total)

Exhibit 1a
CY 2022 Millman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
Maryland APCD: Incurred 1/2022 through 12/2022, Paid through 3/2023 (Adjusted to Estimated Ultimate Incurred)
Summary of Experience by Maryland Region, County, and MSA
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs)

- (1) Risk Score is calculated based on Medical eligibility with valid risk scores, i.e., the risk score shown equals total risk score over total Medical.
- (2) Completion factors used: 0.9813. Risk adjusted allowed dollars are risk normalized to the statewide Maryland risk score of 1.36513.
- (3) The plan benefit factors for the total amounts are calculated based on the combined coinsurance level.
- (4) Teaching hospital amounts are removed from Inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (trended to FY2022 with an annual rate 2.75% based on the file "IME for ICC.xlsx") at the provider level from file we received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of IME 12-00.xlsx". For benchmark results, this adjustment was made at the MSA level.

Region or County Name and County FIPS ID	Member Months and Risk		Total Allowed (2)							Allowed PMPM (2)					RVUs PMPM (2)					Allowed Per RVU				
	Medical MMs	2017 HHS Model Platinum Risk Score (1)	Teaching		Inpatient w/ Teaching		Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Total - Risk Adjusted	Total - Risk & Benefit Adjusted (3)	Inpatient	Outpatient	Prof / Other	Total	Total - Risk Adjusted	Total - Risk & Benefit Adjusted (3)	Inpatient	Outpatient	Prof / Other	Total
			Inpatient	Adjustment (4)	Inpatient	Adjustment																		
Total - All Counties	15,007,671	1.357	\$1,117,969,025	\$59,388,454	\$1,058,580,571	\$1,524,859,871	\$3,302,247,355	\$5,885,687,797	\$70.54	\$101.61	\$220.04	\$392.18	\$392.18	\$377.94	0.78	1.41	5.22	7.41	7.41	7.20	\$90.02	\$71.99	\$42.19	\$42.92
MD1 MD1 (Southern MD)	2,453,577	1.446	\$197,573,568	\$9,196,136	\$188,377,433	\$252,415,791	\$524,039,210	\$964,832,434	\$76.78	\$102.88	\$213.58	\$393.24	\$393.91	\$353.59	0.81	1.32	4.93	7.06	6.62	6.41	\$94.25	\$78.04	\$43.36	\$55.71
MD2 MD2 (Western MD)	582,775	1.469	\$46,633,662	\$1,469,150	\$45,164,512	\$72,289,956	\$116,653,462	\$234,106,860	\$77.50	\$124.04	\$200.17	\$401.71	\$371.02	\$356.17	0.88	1.69	4.59	7.16	6.62	6.41	\$87.58	\$73.33	\$43.63	\$56.07
MD3 MD3 (Eastern Shore)	973,640	1.388	\$74,153,839	\$3,118,053	\$71,035,786	\$111,970,079	\$197,802,578	\$380,808,442	\$72.06	\$115.00	\$203.16	\$381.12	\$382.38	\$369.58	0.82	1.59	5.08	7.49	7.33	7.14	\$88.49	\$72.42	\$39.98	\$52.19
MD4 MD4 (Northern DC Suburbs)	3,617,634	1.241	\$237,237,583	\$9,262,333	\$227,975,249	\$296,257,848	\$886,178,259	\$1,410,411,356	\$63.02	\$81.89	\$244.96	\$389.87	\$426.22	\$412.79	0.68	1.19	5.70	7.56	8.26	8.07	\$93.21	\$69.07	\$43.01	\$51.59
MD5 MD5 (Baltimore Area)	7,380,045	1.371	\$562,370,473	\$36,342,762	\$526,027,691	\$791,927,198	\$1,577,573,616	\$2,895,526,705	\$71.28	\$107.31	\$213.76	\$392.35	\$388.33	\$373.99	0.81	1.51	5.14	7.46	7.39	7.18	\$87.71	\$71.17	\$47.55	\$52.56

MSA	MSA Name	Member Months and Risk		Total Allowed (2)							Allowed PMPM (2)					RVUs PMPM (2)					Allowed Per RVU				
		Medical MMs	2017 HHS Model Platinum Risk Score	Teaching		Inpatient w/ Teaching		Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Total - Risk Adjusted	Total - Risk & Benefit Adjusted (3)	Inpatient	Outpatient	Prof / Other	Total	Total - Risk Adjusted	Total - Risk & Benefit Adjusted (3)	Inpatient	Outpatient	Prof / Other	Total
				Inpatient	Adjustment (4)	Inpatient	Adjustment																		
12580	Baltimore-Columbia-Towson, MD	7,345,776	1.368	\$555,484,176	\$36,313,798	\$519,170,378	\$782,190,887	\$1,578,113,660	\$2,879,474,925	\$70.68	\$106.48	\$214.83	\$391.99	\$388.66	\$374.23	0.81	1.51	5.17	7.49	7.42	7.21	\$87.27	\$70.67	\$41.56	\$52.36
15680	California-Lexington Park, MD	218,383	1.384	\$17,565,201	\$729,736	\$16,835,465	\$25,490,928	\$48,679,874	\$91,006,267	\$77.09	\$116.73	\$222.91	\$416.73	\$408.37	\$396.92	0.75	1.53	4.72	6.99	6.85	6.70	\$103.07	\$76.35	\$47.27	\$59.59
19060	Cumberland, MD	158,493	1.584	\$13,694,602	\$139,246	\$13,555,356	\$25,994,185	\$27,281,701	\$66,840,241	\$85.58	\$164.01	\$172.13	\$421.72	\$391.21	\$343.36	0.99	1.95	4.40	7.34	6.29	6.03	\$86.12	\$84.14	\$39.11	\$57.42
24990	Non-MSA Area, MD	380,643	1.448	\$33,659,399	\$1,295,443	\$32,363,956	\$55,210,335	\$79,717,384	\$167,291,674	\$85.02	\$145.04	\$209.43	\$439.50	\$411.72	\$395.92	0.87	1.90	5.03	7.80	7.31	7.09	\$97.65	\$76.41	\$41.60	\$56.32
25180	Hagerstown-Martinsburg, MD	378,490	1.405	\$26,867,856	\$1,275,408	\$25,592,447	\$38,101,585	\$61,988,729	\$145,683,761	\$67.62	\$100.67	\$216.62	\$384.91	\$371.60	\$356.74	0.80	1.53	4.76	7.08	6.84	6.65	\$86.74	\$65.85	\$43.54	\$54.34
41540	Salisbury, MD	461,545	1.415	\$34,227,968	\$1,408,535	\$32,819,433	\$47,702,598	\$88,242,224	\$168,775,224	\$71.12	\$101.90	\$192.32	\$388.44	\$380.40	\$340.25	0.94	1.41	5.01	7.26	6.80	6.60	\$88.16	\$72.12	\$38.03	\$50.59
23224	Silver Spring-Frederick-Rockville, MD	3,617,634	1.241	\$237,237,583	\$9,262,333	\$227,975,249	\$296,257,848	\$886,178,259	\$1,410,411,356	\$63.02	\$81.89	\$244.96	\$389.87	\$426.22	\$412.79	0.68	1.19	5.70	7.56	8.26	8.07	\$93.21	\$69.07	\$43.01	\$51.59
47894	Washington-Arlington-Alexandria, MD	2,235,194	1.452	\$180,008,367	\$8,466,399	\$171,541,968	\$226,924,863	\$475,359,336	\$879,826,167	\$76.75	\$101.52	\$212.67	\$390.04	\$365.24	\$349.56	0.82	1.30	4.95	7.06	6.60	6.38	\$93.47	\$78.23	\$43.00	\$55.34
48864	Wilmington, MD	211,213	1.344	\$19,193,875	\$505,536	\$18,688,339	\$27,586,645	\$36,103,188	\$82,378,172	\$88.48	\$130.61	\$170.93	\$390.02	\$393.51	\$382.41	0.90	1.55	4.19	6.64	6.70	6.55	\$98.61	\$84.43	\$40.77	\$58.77

Exhibit 1b
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
Maryland APCD: Incurred 1/2022 through 12/2022, Paid through 3/2023 (Adjusted to Estimated Ultimate Incurred)
Plan Benefit Normalization Factors by Maryland Region, County, and MSA
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs)

- (1) Linearly interpolated between coinsurance ranges.
- (2) Risk adjusted amounts are normalized to all of Maryland, which has a 2017 HHS Platinum risk score of 1.356513.
- (3) Risk adjusted and benefit adjusted amounts are calculated as (risk adjusted amount) / (benefit normalization factor).
- (4) Teaching hospital amounts are removed from inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (trended to FY2022 with an annual rate 2.75% based on the file "IME for ICC.xlsx") at the provider level from file received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GME 12-09.xlsx". For benchmark results, this adjustment was made at the MSA level.

Region or County Name and County FIPS ID	Member Months, Risk, and Plan Coinsurance			RVU Plan Benefit Normalization Factors (1)			Allowed Plan Benefit Normalization Factors (1)			Allowed PMPM				Risk Adjusted Allowed PMPM (2)				Risk Adjusted and Benefit Adjusted Allowed PMPM (2) (3)			
	2017 HHS Model		Plan Coinsurance Range	Inpatient	Outpatient	Prof / Other	Inpatient	Outpatient	Prof / Other	Inpatient (4)	Outpatient	Prof / Other	Total	Inpatient (4)	Outpatient	Prof / Other	Total	Inpatient (4)	Outpatient	Prof / Other	Total
	Medical MMs	Platinum Risk Score																			
Total - All Counties	15,007,671	1.357	85%-95%	1.037	1.033	1.027	1.044	1.032	1.039	\$70.54	\$101.61	\$220.04	\$392.18	\$70.54	\$101.61	\$220.04	\$392.18	\$67.58	\$98.49	\$211.86	\$377.94
MD1 MD1 (Southern MD)	2,453,577	1.446	85%-95%	1.041	1.038	1.031	1.051	1.036	1.044	\$76.78	\$102.88	\$213.58	\$393.24	\$72.03	\$96.51	\$200.37	\$368.91	\$68.52	\$93.20	\$191.88	\$353.59
MD2 MD2 (Western MD)	582,775	1.469	85%-95%	1.040	1.037	1.030	1.050	1.035	1.043	\$77.50	\$124.04	\$200.17	\$401.71	\$71.58	\$114.56	\$184.87	\$371.02	\$68.20	\$110.72	\$177.25	\$356.17
MD3 MD3 (Eastern Shore)	973,640	1.388	85%-95%	1.034	1.030	1.024	1.040	1.030	1.036	\$72.96	\$115.00	\$203.16	\$391.12	\$71.33	\$112.43	\$198.62	\$368.98	\$66.20	\$109.20	\$191.78	\$369.58
MD4 MD4 (Northern DC Suburbs)	3,617,634	1.241	85%-95%	1.032	1.028	1.023	1.036	1.028	1.033	\$63.02	\$81.89	\$244.96	\$389.87	\$68.89	\$89.53	\$267.80	\$426.22	\$66.47	\$87.10	\$259.22	\$412.79
MD5 MD5 (Baltimore Area)	7,380,045	1.371	85%-95%	1.037	1.034	1.027	1.045	1.032	1.039	\$71.28	\$107.31	\$213.76	\$392.35	\$70.55	\$106.21	\$211.57	\$388.33	\$67.53	\$102.90	\$203.56	\$373.99
24001 Allegany	158,493	1.584	85%-95%	1.061	1.043	1.039	1.083	1.042	1.047	\$85.58	\$164.01	\$172.13	\$421.72	\$73.30	\$140.47	\$147.43	\$361.21	\$67.67	\$134.85	\$140.84	\$343.36
24003 Anne Arundel	1,593,369	1.306	85%-95%	1.032	1.028	1.023	1.037	1.028	1.033	\$64.30	\$85.86	\$206.23	\$356.39	\$66.77	\$89.16	\$214.15	\$370.07	\$64.41	\$86.74	\$207.27	\$358.42
24005 Baltimore	2,110,398	1.427	85%-95%	1.039	1.036	1.029	1.048	1.034	1.042	\$74.77	\$117.02	\$223.49	\$415.28	\$71.08	\$111.25	\$212.46	\$394.79	\$67.83	\$107.61	\$203.95	\$379.38
24009 Calvert	282,662	1.444	85%-95%	1.047	1.040	1.033	1.060	1.038	1.046	\$79.36	\$103.06	\$209.04	\$391.46	\$74.54	\$96.80	\$196.34	\$367.68	\$70.33	\$93.27	\$187.65	\$351.26
24011 Caroline	91,112	1.394	85%-95%	1.045	1.040	1.033	1.057	1.037	1.046	\$78.51	\$126.95	\$206.12	\$411.58	\$76.41	\$123.57	\$200.62	\$400.60	\$72.28	\$119.11	\$191.75	\$383.14
24013 Carroll	602,985	1.273	85%-95%	1.035	1.031	1.025	1.042	1.031	1.037	\$66.58	\$98.22	\$211.96	\$376.76	\$70.97	\$104.69	\$225.93	\$401.59	\$68.14	\$101.59	\$217.88	\$387.61
24015 Cecil	211,213	1.344	85%-95%	1.029	1.025	1.020	1.032	1.026	1.030	\$88.48	\$130.61	\$170.93	\$390.02	\$89.27	\$131.78	\$172.46	\$393.51	\$86.48	\$128.48	\$167.45	\$382.41
24017 Charles	359,795	1.402	85%-95%	1.045	1.040	1.033	1.056	1.037	1.046	\$79.78	\$107.31	\$225.48	\$412.57	\$77.22	\$103.86	\$218.23	\$399.31	\$73.09	\$100.13	\$208.59	\$361.81
24019 Dorchester	69,789	1.555	85%-95%	1.044	1.040	1.032	1.056	1.037	1.046	\$77.46	\$154.48	\$222.02	\$453.96	\$67.57	\$134.77	\$193.70	\$396.04	\$64.01	\$129.94	\$185.14	\$379.09
24021 Frederick	953,106	1.250	85%-95%	1.034	1.030	1.024	1.040	1.030	1.036	\$62.65	\$75.45	\$239.37	\$377.46	\$68.00	\$81.89	\$259.81	\$409.70	\$65.38	\$79.53	\$250.84	\$395.75
24023 Garrett	45,792	1.597	85%-95%	1.040	1.036	1.029	1.048	1.034	1.042	\$131.19	\$178.92	\$161.21	\$471.32	\$111.47	\$152.02	\$136.97	\$400.47	\$106.34	\$147.02	\$131.45	\$384.81
24025 Harford	793,026	1.298	85%-95%	1.036	1.033	1.026	1.043	1.031	1.038	\$72.22	\$104.17	\$211.13	\$387.51	\$75.50	\$108.90	\$220.72	\$405.12	\$72.36	\$105.58	\$212.56	\$390.50
24027 Howard	984,573	1.223	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$58.73	\$86.61	\$219.08	\$364.42	\$65.13	\$96.05	\$242.95	\$404.13	\$62.54	\$93.21	\$234.32	\$390.08
24029 Kent	63,373	1.324	85%-95%	1.038	1.034	1.028	1.046	1.033	1.040	\$81.03	\$151.98	\$189.46	\$422.45	\$83.02	\$155.68	\$194.10	\$432.80	\$79.37	\$150.73	\$186.58	\$416.68
24031 Montgomery	2,664,528	1.238	85%-95%	1.031	1.027	1.022	1.035	1.027	1.032	\$63.15	\$84.20	\$246.96	\$394.31	\$69.22	\$92.29	\$270.68	\$432.19	\$66.86	\$89.84	\$262.24	\$418.94
24033 Prince Georges	1,592,737	1.465	85%-95%	1.042	1.038	1.031	1.052	1.038	1.045	\$75.60	\$89.94	\$210.42	\$385.96	\$70.01	\$92.56	\$194.87	\$357.44	\$66.54	\$89.34	\$186.48	\$342.36
24035 Queen Anne's	176,944	1.240	85%-95%	1.034	1.031	1.025	1.040	1.030	1.036	\$66.86	\$100.88	\$207.09	\$374.83	\$73.12	\$114.32	\$226.47	\$409.91	\$70.29	\$107.12	\$218.59	\$396.00
24037 Saint Mary's	218,383	1.384	85%-95%	1.029	1.025	1.020	1.032	1.025	1.030	\$77.09	\$116.73	\$222.91	\$416.73	\$75.55	\$114.39	\$218.44	\$408.37	\$73.22	\$111.54	\$212.16	\$396.92
24039 Somerset	44,709	1.669	85%-95%	1.048	1.040	1.034	1.062	1.038	1.046	\$66.98	\$110.10	\$194.53	\$371.61	\$54.44	\$89.48	\$158.10	\$302.01	\$51.27	\$86.20	\$151.09	\$288.56
24041 Talbot	110,577	1.435	85%-95%	1.032	1.029	1.023	1.037	1.028	1.034	\$78.34	\$136.01	\$235.62	\$449.97	\$74.06	\$128.58	\$222.75	\$425.39	\$71.42	\$125.06	\$215.53	\$412.00
24043 Washington	378,490	1.405	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$67.62	\$100.67	\$216.62	\$384.91	\$65.28	\$97.19	\$209.13	\$371.60	\$62.69	\$94.32	\$201.73	\$358.74
24045 Wicomico	246,275	1.396	85%-95%	1.035	1.032	1.025	1.042	1.031	1.037	\$73.32	\$93.17	\$197.11	\$363.61	\$71.24	\$90.53	\$191.51	\$353.28	\$68.39	\$87.84	\$184.67	\$340.60
24047 Worcester	170,861	1.375	85%-95%	1.018	1.014	1.011	1.015	1.017	1.017	\$69.04	\$112.57	\$184.85	\$366.46	\$68.11	\$111.07	\$182.38	\$361.56	\$67.14	\$109.26	\$179.40	\$355.79
24510 Baltimore City	1,084,481	1.602	85%-95%	1.045	1.040	1.033	1.058	1.037	1.046	\$84.70	\$141.52	\$212.35	\$438.56	\$71.73	\$119.85	\$179.83	\$371.41	\$67.83	\$115.52	\$171.89	\$355.23

Maryland APCD (Maryland MSAs)

MSA Name and ID	Member Months, Risk, and Plan Coinsurance			RVU Plan Benefit Normalization Factors (1)			Allowed Plan Benefit Normalization Factors (1)			Allowed PMPM				Risk Adj Allowed PMPM (2)				Risk Adjusted and Benefit Adjusted Allowed PMPM (2) (3)			
	2017 HHS Model		Plan Coinsurance Range	Inpatient	Outpatient	Prof / Other	Inpatient	Outpatient	Prof / Other	Inpatient	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total
	Medical MMs	Platinum Risk Score																			
12580 Baltimore-Columbia-Towson, MD	7,345,776	1.368	85%-95%	1.037	1.034	1.027	1.045	1.032	1.040	\$70.68	\$106.48	\$214.83	\$391.99	\$70.07	\$105.58	\$213.01	\$388.66	\$67.06	\$102.27	\$204.90	\$374.23
15680 California-Lexington Park, MD	218,383	1.384	85%-95%	1.029	1.025	1.020	1.032	1.025	1.030	\$77.09	\$116.73	\$222.91	\$416.73	\$75.55	\$114.39	\$218.44	\$408.37	\$73.22	\$111.54	\$212.16	\$396.92
19060 Cumberland, MD	158,493	1.584	85%-95%	1.061	1.043	1.039	1.083	1.042	1.047	\$85.58	\$164.01	\$172.13	\$421.72	\$73.30	\$140.47	\$147.43	\$361.21	\$67.67	\$134.85	\$140.84	\$343.36
24999 Non-MSA Area, MD	380,643	1.448	85%-95%	1.039	1.035	1.028	1.047	1.034	1.041	\$85.02	\$145.04	\$209.43	\$439.50	\$79.65	\$135.88	\$196.19	\$411.72	\$76.05	\$131.47	\$188.40	\$395.92
25180 Hagerstown-Martinsburg, MD	378,490	1.405	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$67.62	\$100.67	\$216.62	\$384.91	\$65.28	\$97.19	\$209.13	\$371.60	\$62.69	\$94.32	\$201.73	\$358.74
41540 Salisbury, MD	461,845	1.415	85%-95%	1.030	1.026	1.021	1.033	1.026	1.031	\$71.12	\$101.99	\$192.32	\$366.44	\$68.20	\$97.79	\$184.41	\$350.40	\$66.01	\$95.29	\$178.93	\$340.23
23224 Silver Spring-Frederick-Rockville, MD	3,617,634	1.241	85%-95%	1.032	1.028	1.023	1.036	1.028	1.033	\$63.02	\$81.89	\$244.96	\$389.87	\$68.89	\$89.53	\$267.80	\$426.22	\$66.47	\$87.10	\$259.22	\$412.79
47894 Washington-Arlington-Alexandria, MD	2,235,194	1.452	85%-95%	1.043	1.039	1.032	1.053	1.037	1.046	\$76.75	\$101.52	\$212.67	\$390.94	\$71.70	\$94.85	\$198.69	\$365.24	\$68.07	\$91.50	\$189.99	\$349.56

Exhibit 2b
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
Maryland APDC: Incurred 1/2022, Paid through 3/2023 (Adjusted to Estimated Ultimate Incurred)
Plan Benefit Normalization Factors by PSAP
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs)

- (1) Linearly interpolated between coinsurance ranges.
(2) Risk adjusted amounts are normalized to all of Maryland, which has a 2017 HHS Platinum risk score of 1.395613.
(3) Risk adjusted and benefit adjusted amounts are calculated as (risk adjusted amount) / (benefit normalization factor).
(4) Teaching hospital amounts are removed from inpatient allowed and allowed amounts (using 'DNF' reason and residential treatment) based on the FY2017 per DMA level (revised to FY2022 with an annual rate 2.75% based on the file "ME for ICD-10") at the provider level from file we received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GME 12-09-46x". For benchmark results, this adjustment was made per the MS level.
(5) Cost and utilization data are aggregated for each hospital's Primary Service Area Plus (PSAP). The hospital PSAP is based on the ZIP Code and hospital share mapping provided by HSCRC from file named "Allpayer and Medicare PSAP 4.2.2019.xlsx". For each hospital's PSAP, the cost and utilization values are calculated as the sum of the PSAP ZIP Codes at the ZIP Code level (where the ZIP Code).

Table with columns: Hospital Name and Medicare ID (5), 2017 HHS Model Platinum Risk Score, Plan Coinsurance Range, RVU Plan Benefit Normalization Factors (1), Allowed Plan Benefit Normalization Factors (1), Allowed PMPM, Risk Adjusted Allowed PMPM (2), Risk Adjusted and Benefit Adjusted Allowed PMPM (2) (3), RVU PMPM, Risk Adj RVU PMPM (2), Risk Adjusted and Benefit Adj RVU PMPM (2) (3). Rows include various hospitals like ANNE ARUNDEL, BALTIMORE WASHINGTON, etc.

Exhibit 3a
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
CHSD Claims Incurred 1/2022 through 12/2022 (Adjusted to Estimated Ultimate Incurred)
Summary of Experience by Maryland Region and MSA
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs)

- (1) Risk Score is calculated based on Medical eligibility with valid risk scores, i.e. the risk score shown equals total risk score over total Medical.
- (2) Maryland regional benchmark totals are based on an average of the benchmark MSA results. The total across all MSAs is a member-weighted average across all MSAs used in the regional benchmarks.
- (3) Normalized to 2022 APCD data for all Maryland counties which has risk score of 1.356513.
- (4) Teaching hospital amounts are removed from inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (trended to FY2022 with an annual rate of 2.75% based on the file "IME for ICC.xlsx" at the provider level from file we received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GME 12-09.xlsx". For benchmark results, this adjustment was made at the MSA level.

MSA	MSA Name (2)	Member Months and Risk		Total Allowed(2)					Allowed PMPM (2)					RVUs PMPM (2)					Allowed Per RVU				
		2017 HHS Model Platinum Risk Score (1)	Medical MMs	Inpatient	Teaching Hospital Adjustment (4)	Inpatient w/ Teaching Adjustment	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Total - Risk Adjusted (3)	Inpatient	Outpatient	Prof / Other	Total	Total - Risk Adjusted (3)	Inpatient	Outpatient	Prof / Other	Total
All	All MSAs in this Exhibit		96,924,169							\$102.10	\$155.67	\$183.76	\$441.53	\$412.86	0.88	1.50	3.66	6.04	5.65	\$115.99	\$103.52	\$50.21	\$73.05
MD1	MD1 (Southern MD)		42,491,766	1.451						\$107.75	\$160.30	\$199.02	\$467.06	\$436.63	0.89	1.55	3.81	6.25	5.84	\$121.17	\$103.48	\$52.26	\$74.77
MD2	MD2 (Western MD)		6,792,417	1.496						\$107.12	\$156.44	\$160.75	\$424.31	\$384.67	0.99	1.69	3.56	6.24	5.65	\$108.30	\$92.58	\$45.18	\$68.03
MD3	MD3 (Eastern Shore)		7,487,131	1.501						\$110.20	\$164.82	\$167.57	\$442.59	\$399.96	0.99	1.69	3.69	6.37	5.75	\$111.05	\$97.68	\$45.44	\$69.51
MD4	MD4 (Northern DC Suburbs)		42,181,418	1.408						\$113.59	\$166.29	\$202.58	\$482.44	\$464.95	0.84	1.46	3.68	5.98	5.77	\$134.85	\$114.07	\$55.00	\$80.64
MD5	MD5 (Baltimore Area)		70,210,377	1.473						\$102.93	\$162.13	\$194.25	\$459.31	\$422.99	0.93	1.60	3.80	6.33	5.83	\$111.00	\$101.15	\$51.16	\$72.59

Milliman GlobalRVUs

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What are GlobalRVUs?¹

GlobalRVUs are a relative value unit system covering the entire range of services, from hospital to physician, durable medical equipment (DME) to lab, even pharmacy. Use of Relative Value Units (RVUs) is a common practice with payment schedules. The RVUs define cost relativities between services enabling entire schedules to be easily compared. The most well-known examples of this are Medicare's physician RBRVS and Medicare's inpatient diagnosis-related group (DRG) weights. These RVU systems are limited since they focus on a particular type of provider, such as physician or inpatient hospital, and do not relate services across provider types. GlobalRVUs solve this disconnect by providing an RVU system that covers all healthcare services.

GlobalRVUs permit different services to be combined for analysis and have a wide variety of applications, including:

- **Analyzing claims experience.** GlobalRVUs allow you to separate unit cost versus utilization efficiency.
- **Evaluating provider contracts.** GlobalRVUs allow for unit cost aggregation of hospital and physician services.
- **Developing episodes of care and bundled payments.** GlobalRVUs allow the user to understand and remove the unit cost biases in the experience data.
- **Setting and analyzing global risk targets,** particularly across multiple provider organizations with differing contract structures, such as accountable care organizations. GlobalRVUs can be used to analyze opportunities for improvement—for example, identifying high-cost specialists or hospitals in the experience data.

Allowed dollar claims data can be normalized with GlobalRVUs to put the services on a common basis permitting this range of analyses. If charges are not available, GlobalRVUs can still be used as a proxy for charge levels, allowing for different types of utilization efficiency analyses (e.g., episodes and PMPM) and case mix studies.

An added advantage of GlobalRVUs in utilization analyses is that, since potentially confidential average charges are not being used, results can be released externally without breaching confidentiality provisions. The RVUs have taken the place of the allowed charges, thus removing the limitations that might be placed on distributing the analysis.

About GlobalRVUs

GlobalRVUs consist of three separate components:

- **Medicare physician RVUs.** Physician claims are assigned GlobalRVUs based on Medicare's fee schedules, including DME, lab, ambulance and anesthesia. For services paid using Medicare's RBRVS RVUs for physicians, the GlobalRVUs are equal to Medicare's RVUs. The RVU adjudication process reflects Medicare's claim adjudication rules to adjust the assigned RVUs for modifiers, multiple procedure discounting, and bundling.
- **RBRVS for Hospitals™.** RBRVS for Hospitals is a proprietary Milliman product that contains a RVU schedule for hospitals that is consistent with Medicare's physician RVU schedule. A more detailed description of RBRVS for Hospitals is available on the Milliman website.²
- **Prescription drug RVUs.** Prescription drug RVUs are developed based upon average wholesale price (AWP) information. AWP is assigned to each claim by National Drug Code (NDC), adjusted for discounts, dispensing fees and anticipated rebates, then converted to an RVU that is consistent with Medicare's physician RVUs and the RBRVS for Hospitals RVUs.

1 Milliman solutions: GlobalRVUs. <http://milliman.com/GlobalRVUs>

2 Milliman RBRVS for Hospitals. <http://www.milliman.com/expertise/healthcare/products-tools/rbrvs/pdfs/milliman-rbrvs-for-hospitals.pdf>

Using GlobalRVUs

TABLE A: CALCULATING A CONVERSION FACTOR

Once RVUs are assigned to services, conversion factors are calculated by dividing total dollars by the RVUs. This can be done by individual procedure or aggregated at any level, even in total across all services.

TABLE A: CALCULATING A CONVERSION FACTOR

	ALLOWED CHARGES	GLOBAL RVUS
INPATIENT SERVICES		
APR 047-1	\$8,000	131.583
OUTPATIENT SERVICES		
82441	\$20	.0241
74150	\$425	3.600
PROFESSIONAL SERVICES		
99284	\$122	3.370
PRESCRIPTION DRUGS		
00037580030	\$62	1.477
TOTAL	\$8,629	140.271
CONVERSION FACTOR (ALLOWED CHARGES/RVUS)		\$61.52

Once conversion factors are calculated, they can be compared and analyzed. Due to the multiple applications of GlobalRVUs, a variety of analyses may be performed. Two examples are provided below.

TABLE B: BENCHMARKING PROVIDER CONTRACTS BY CARRIER

For this example, different types of provider contracts are evaluated for multiple carriers and benchmarked to a base contract. Using GlobalRVUs, average conversion factors are calculated for inpatient, outpatient, and physician services, and can be combined for an overall comparison between carriers. The GlobalRVUs provide case-mix adjustment across contracts with different service mixes without requiring claims under one contract to be repriced under a different contract.

TABLE C: COMPARISON OF DELIVERY SYSTEMS

For this example, the claims experience for six provider groups is normalized with the GlobalRVUs to isolate unit cost and utilization differences. Conversion factors are calculated as the average allowed charge per RVU. These conversion factors are then benchmarked relative to the area average, thus showing the unit price difference between groups. When this relativity is divided out of the starting allowed PMPM, the adjusted allowed

TABLE B: BENCHMARKING PROVIDER CONTRACTS BY CARRIER

TYPE OF SERVICE	BASE	CARRIER 1		CARRIER 2	
	CONVERSION FACTOR	CONVERSION FACTOR	RELATIVE TO BASE	CONVERSION FACTOR	RELATIVE TO BASE
FACILITY INPATIENT	\$62.40	\$65.58	1.05	\$66.58	1.07
FACILITY OUTPATIENT	\$64.09	\$64.23	1.00	\$68.23	1.06
PROFESSIONAL	\$55.98	\$57.25	1.02	\$62.07	1.11
TOTAL	\$60.09	\$61.52	1.02	\$65.10	1.08

TABLE C: COMPARISON OF DELIVERY SYSTEMS

PRIMARY CARE GROUP	RISK-ADJUSTED PMPM ALLOWED	RELATIVE COST	PMPM RVUS	UTILIZATION EFFICIENCY	CONVERSION FACTOR	RELATIVE UNIT PRICE
AREA AVERAGE	\$373.70	1.000	6.175	1.000	\$60.52	1.000
GROUP A	\$344.38	0.922	6.196	1.004	\$55.58	0.918
GROUP B	\$421.67	1.128	6.447	1.044	\$65.41	1.081
GROUP C	\$344.95	0.923	5.902	0.956	\$58.45	0.966
GROUP D	\$371.92	0.995	6.042	0.979	\$61.56	1.017
GROUP E	\$366.31	0.980	5.908	0.957	\$62.00	1.024
GROUP F	\$393.11	1.052	6.439	1.043	\$61.05	1.009

PMPM between groups represents differences in resource utilization. This is shown in the last column benchmarked relative to the area average. Note that the utilization efficiency can also be derived directly from the PMPM RVUs if no allowed charge information is available.

Implementing GlobalRVUs

The GlobalRVUs can be easily attached to any data set using Milliman software. In addition to an interface to run the RVU assignment software, we provide a series of reports, available through Microsoft Excel, that allow you to review the quality of the data input, ensure that the RVUs have been properly assigned, and review the results of the RVU assignments.



Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

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Attachment B-1
 CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
 2022 Maryland APCD - Data Validation
 Summary of Membership, Medical Paid, and Medical Paid PMPM
 Comparison of Maryland APCD and NAIC Annual Statement
 Limited to Commercial Line of Business (1)

	P020	P030		P820	P870	P500	P820		P130	P131	P132		P160	P180	P320	
	Aetna Life Insurance Co.	Aetna Health, Inc.	Aetna Subtotal	UnitedHealthcare Insurance Co.	United Healthcare of the Mid-Atlantic, Inc. HBX	MAMSI Life and Health Ins. Co.	MD-Individual Practice Association, Inc.	United Subtotal	CareFirst BlueChoice, Inc.	CareFirst of Maryland, Inc.	Group Hospitalization & Medical Services, Inc. (GHMSI)	CareFirst Subtotal	Cigna Health & Life Insurance Co., Inc.	Connecticut General Life Ins. Co.	Golden Rule Insurance Co.	Total
Member Months																
APCD	530,129	226,221	756,350	1,598,550	92,589	135,702	0	1,826,841	3,623,443	123,666	332,270	4,079,379	1,031,490	409,670	0	8,103,730
NAIC Annual Statement (2)	n/a	133,671	133,671	n/a	75,714	136,896	n/a	213,580	3,372,645	133,380	294,391	3,800,406	n/a	n/a	n/a	4,147,657
Difference	n/a	92,550	92,550	n/a	15,872	-1,194	n/a	1,613,261	250,798	-9,714	37,879	278,973	n/a	n/a	n/a	3,556,073
% Difference	n/a	69.2%	465.8%	n/a	20.7%	-0.9%	n/a	755.3%	7.4%	-7.3%	12.9%	7.3%	n/a	n/a	n/a	95.4%
Total Paid Medical and Rx - Exclusions																
APCD - Medical and Rx	\$1,051,198,771	\$120,034,090	\$1,171,232,861	\$1,533,681,252	\$35,524,803	\$61,779,883	\$0	\$1,630,985,938	\$2,047,398,991	\$2,722,750,834	\$1,201,834,456	\$5,971,984,281	\$1,444,920,281	\$243,885,909	\$6,516,046	\$10,469,525,315
Excluded - MA, Med Sup, Unknown	\$441,983,454	\$13,983,953	\$455,967,406	\$25,983,897	\$25,088	\$942,780	\$0	\$26,951,765	\$133,472	\$75,090,442	\$7,604,066	\$82,827,980	\$0	\$0	\$117,021	\$565,254,172
Excluded - ASO, FEB	\$355,392,767	\$2,982,537	\$358,375,304	\$728,474,556	\$0	\$0	\$0	\$728,474,556	\$4,302	\$1,978,868,089	\$546,681,414	\$2,525,553,805	\$705,343,579	\$13,370,944	\$0	\$4,331,118,188
Excluded - No Membership	\$67,355,502	\$9,298,562	\$76,654,064	\$81,226,574	\$2,253,887	\$4,168,906	\$0	\$87,648,367	\$133,481,554	\$107,415,161	\$54,017,449	\$294,914,164	\$155,419,189	\$23,153,456	\$0	\$637,790,240
Excluded - IND	\$6,389,071	\$0	\$6,389,071	\$0	\$0	\$0	\$0	\$0	\$907,393,937	\$198,052,463	\$133,358,869	\$1,238,805,269	\$0	\$0	\$6,399,025	\$1,251,593,365
Paid Medical and Rx and NAIC Annual Statement																
APCD - Medical (2)	\$143,410,002	\$76,211,385	\$219,621,387	\$500,370,722	\$22,488,278	\$39,466,351	\$0	\$562,325,351	\$776,666,069	\$218,561,996	\$296,443,830	\$1,291,671,895	\$442,573,078	\$159,390,207	\$0	\$2,675,581,918
APCD - Rx	\$36,687,975	\$18,147,653	\$54,835,628	\$197,625,503	\$10,757,550	\$17,201,846	\$0	\$225,584,899	\$229,719,657	\$144,762,683	\$163,728,828	\$538,211,168	\$141,584,435	\$47,971,302	\$0	\$1,008,187,432
Rx Rebate Estimate (3)	29%	25%	28%	n/a	41%	38%	n/a	5%	36%	36%	35%	36%	30%	n/a	n/a	n/a
APCD - Total (Net of Rx Rebates)	\$109,463,036	\$59,824,130	\$259,287,166	\$697,996,225	\$28,881,201	\$30,075,439	\$0	\$716,952,965	\$922,695,917	\$311,439,306	\$402,668,377	\$1,836,803,600	\$541,677,435	\$207,361,509	\$0	\$3,422,082,975
NAIC Annual Statement (4)	\$188,444,591	\$51,276,640	\$239,721,231	\$0	\$25,956,387	\$57,030,390	\$0	\$82,986,777	\$1,369,161,024	\$66,722,429	\$151,296,981	\$1,587,180,434	\$461,388,791	\$122,034	\$0	\$2,371,399,267
Difference	(\$18,981,555)	(\$8,247,490)	(\$18,565,935)	(\$697,996,225)	(\$2,624,814)	(\$8,954,951)	\$0	(\$693,986,068)	(\$446,465,107)	(\$244,716,877)	(\$251,371,356)	(\$49,623,166)	(\$80,266,644)	(\$207,239,475)	\$0	(\$1,050,683,308)
% Difference	-10.1%	75.2%	8.2%	n/a	11.3%	-12.2%	n/a	836.2%	-32.6%	366.8%	166.1%	3.1%	17.4%	16982.1%	n/a	44.3%
Paid Medical and Rx PMPM																
APCD (3)	\$319.66	\$397.06	\$342.81	\$436.64	\$311.93	\$369.01	n/a	\$425.30	\$254.65	\$2,518.39	\$1,211.87	\$401.24	\$525.14	\$506.17	n/a	\$422.28
NAIC Annual Statement (4)	n/a	\$383.60	n/a	n/a	\$338.35	\$416.69	n/a	\$388.55	\$405.96	\$500.24	\$513.95	\$417.63	n/a	n/a	n/a	\$415.04
Difference	n/a	\$13.46	n/a	n/a	(\$26.42)	(\$47.68)	n/a	\$36.75	(\$151.31)	\$2,018.15	\$697.92	(\$16.40)	n/a	n/a	n/a	\$7.24
% Difference	n/a	3.5%	n/a	n/a	-7.8%	-11.4%	n/a	9.5%	-37.3%	403.4%	135.8%	-3.9%	n/a	n/a	n/a	1.7%

Notes:
 1) For the APCD, commercial claims are identified by the market_segment data field. The following types are considered commercial:

market_segment	Description
5	Private Employer Sponsored or Other Group
7	Public Employees - Other
8	Small Business Options Program (SHOP) not sold on MHBE
C	Small Business Options Program (SHOP) sold on MHBE

- 2) Incurred in CY 2022, paid through March 2023. Excludes claim records with no corresponding membership.
- 3) Rx rebate estimated from the supplemental healthcare exhibit part 1 from lines 2.2 and 2.3 for the small and large group lines of business.
- 4) Estimated incurred (i.e. paid plus change in reserve). For the following carriers, we used APCD member months because NAIC member month values are unavailable: Aetna Life Insurance Co., UnitedHealthcare Insurance Co., and Cigna Health.

Attachment B-2
 CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
 2022 Maryland APCD - Data Validation
 Summary of Data Exclusions
 Paid Amounts by Payers

Pnum	Paid Amounts Payers Included in Attachment B-1														Paid Amounts Payers Excluded from Attachment B-1						
	P020	P030	P620	P670	P500	P130	P131	P132 Group	P160	P160	P320	P520	P624	P760	T031	T050	T060	T090	T140	T820	
Reported Raw Total (Medical + Rx)	\$1,329,145,572	\$150,113,329	\$2,011,189,890	\$45,539,174	\$81,895,394	\$2,599,062,351	\$3,517,498,768	\$1,471,411,430	\$1,712,702,698	\$293,463,339	\$7,947,138	\$0	\$10,424,759	\$6,246,729	\$28,359,677	\$0	\$6,823,525	\$12,845,682	\$0	\$4,800,585	\$13,399,497,427
Medical	\$1,120,924,187	\$119,761,844	\$1,620,372,965	\$32,519,125	\$60,388,767	\$1,851,021,204	\$2,902,326,095	\$1,207,175,059	\$1,473,961,292	\$219,211,719	\$7,175,225	\$0	\$6,363,636	\$6,246,729	\$28,359,677	\$0	\$5,447,596	\$12,845,682	\$0	\$4,659,808	\$10,889,770,340
Init	\$621,201,078	\$62,932,781	\$862,258,014	\$18,548,794	\$36,958,003	\$972,202,729	\$1,524,094,219	\$576,198,424	\$688,058,897	\$108,242,475	\$3,460,510	\$0	\$3,467,163	\$3,276,448	\$15,118,791	\$0	\$2,212,915	\$7,261,805	\$0	\$2,617,943	\$5,638,110,988
Prof	\$499,723,109	\$56,829,063	\$847,114,951	\$13,970,331	\$23,430,784	\$878,828,475	\$1,378,231,878	\$630,976,635	\$775,902,395	\$110,989,244	\$3,714,715	\$0	\$4,896,203	\$2,970,281	\$13,240,886	\$0	\$3,234,681	\$5,583,877	\$0	\$2,041,855	\$5,051,659,351
Rx	\$208,221,385	\$30,351,682	\$398,816,925	\$13,020,049	\$21,506,617	\$668,041,347	\$615,172,673	\$264,236,371	\$438,741,406	\$74,251,620	\$771,913	\$0	\$1,361,933	\$0	\$0	\$0	\$1,376,929	\$0	\$0	\$140,777	\$2,709,717,087
Medical Only	\$1,120,924,187	\$119,761,844	\$1,620,372,965	\$32,519,125	\$60,388,767	\$1,851,021,204	\$2,902,326,095	\$1,207,175,059	\$1,473,961,292	\$219,211,719	\$7,175,225	\$0	\$6,363,636	\$6,246,729	\$28,359,677	\$0	\$5,447,596	\$12,845,682	\$0	\$4,659,808	\$10,889,770,340
Exclude Service Dates not in CY 2022	\$220,518,193	\$25,572,283	\$363,356,221	\$7,420,250	\$15,652,058	\$413,640,888	\$649,158,687	\$220,004,816	\$374,759,883	\$22,299,046	\$1,202,675	\$0	\$2,257,248	\$1,082,615	\$6,114,638	\$0	\$631,317	\$2,797,159	\$0	\$1,312,167	\$2,347,780,444
Subtotal (Starting Point)	\$900,405,984	\$94,189,561	\$1,248,016,744	\$25,098,875	\$44,736,709	\$1,437,380,316	\$2,253,167,408	\$987,170,243	\$1,099,201,409	\$106,912,673	\$5,972,550	\$0	\$6,106,118	\$5,163,814	\$22,245,039	\$0	\$4,816,279	\$10,046,823	\$0	\$3,347,641	\$8,341,989,695
Claim Detail Exclusions																					
Institutional Data BiType Exclusions	\$36,851,724	\$2,790,982	\$67,327,764	\$1,486,641	\$3,721,696	\$24,291,653	\$98,478,998	\$32,300,717	\$3,321,417	\$6,188,657	\$21,780	\$0	\$809,402	\$154,092	\$158,897	\$0	\$82,821	\$500,231	\$0	\$123,848	\$276,611,319
Professional Non-OP claims	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Routine Dental and Orthodontic	\$144,156	\$12,648	\$36,706	\$81	\$1,842	\$3,518,202	\$2,122,127	\$2,162,023	\$58,240	\$3,942	\$0	\$0	\$62,524	\$0	\$953	\$0	\$0	\$0	\$0	\$0	\$8,123,414
Capitalized Claims	\$54,854	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$54,854
After Claim Detail Exclusions	\$863,355,260	\$91,385,931	\$1,178,652,274	\$23,612,153	\$41,013,171	\$1,409,580,461	\$2,152,586,283	\$952,707,503	\$1,095,821,752	\$190,720,074	\$5,950,770	\$0	\$5,234,192	\$5,009,722	\$22,085,219	\$0	\$4,733,458	\$9,548,292	\$0	\$3,223,793	\$8,055,200,308
Orphan Claims	\$19,452,223	\$1,522,924	\$26,787,566	\$1,107,480	\$740,009	\$19,946,469	\$25,302,768	\$14,984,565	\$89,443,522	\$21,090,681	\$33,078	\$0	\$198,311	\$24,013	\$181,194	\$0	\$274,495	\$37,098	\$0	\$55,905	\$221,182,302
After Orphan Claim Exclusions	\$843,903,037	\$89,863,007	\$1,151,864,708	\$22,504,673	\$40,273,162	\$1,389,633,992	\$2,127,283,515	\$937,722,938	\$1,006,378,230	\$169,629,393	\$5,917,692	\$0	\$5,035,881	\$4,985,709	\$21,904,025	\$0	\$4,458,963	\$9,511,194	\$0	\$3,167,888	\$7,834,018,006
Initial LOB exclusions																					
Medicare Advantage	\$361,203,167	\$10,607,262	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$371,810,428
Medicare Supplement	\$0	\$0	\$0	\$0	\$0	\$81,930	\$75,067,640	\$7,602,076	\$0	\$0	\$117,021	\$0	\$0	\$1,372,027	\$0	\$0	\$0	\$0	\$0	\$0	\$0
After Medicare Exclusions	\$482,699,870	\$79,255,745	\$1,151,864,708	\$22,504,673	\$40,273,162	\$1,389,552,062	\$2,052,195,875	\$930,120,862	\$1,006,378,230	\$169,629,393	\$5,800,671	\$0	\$5,035,881	\$3,613,682	\$21,904,025	\$0	\$4,458,963	\$9,511,194	\$0	\$3,167,888	\$7,477,966,884
Non-Maryland Residents	\$21,017,094	\$2,206,282	\$546,665,960	\$4,555,895	\$13,899,781	\$152,842,382	\$249,498,448	\$146,231,348	\$213,430,383	\$42,971,380	\$1,476,797	\$0	\$29,031	\$0	\$3,669,080	\$0	\$25,222	\$40,056	\$0	\$16,159	\$1,396,575,298
After Non-Maryland Exclusions	\$461,682,776	\$77,049,463	\$605,198,748	\$17,948,778	\$26,373,381	\$1,236,709,680	\$1,802,697,427	\$783,889,514	\$792,947,847	\$126,658,013	\$4,323,874	\$0	\$5,006,850	\$3,613,682	\$18,234,945	\$0	\$4,433,741	\$9,471,138	\$0	\$3,151,729	\$5,979,391,586
LOB Exclusions																					
FEHB (1)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
After FEHB Exclusions	\$461,682,776	\$77,049,463	\$605,198,748	\$17,948,778	\$26,373,381	\$1,236,709,680	\$1,802,697,427	\$783,889,514	\$792,947,847	\$126,658,013	\$4,323,874	\$0	\$5,006,850	\$3,613,682	\$18,234,945	\$0	\$4,433,741	\$9,471,138	\$0	\$3,151,729	\$5,979,391,586
Exclude 65 and Over Members	\$43,506,345	\$8,098,591	\$82,526,917	\$934,673	\$1,329,676	\$78,791,100	\$256,508,322	\$104,466,194	\$104,701,611	\$9,492,708	\$66,745	\$0	\$5,629	\$1,267,428	\$2,107,032	\$0	\$330,627	\$1,490,419	\$0	\$426,899	\$696,050,816
After 65 and Over Exclusions	\$418,176,431	\$68,950,872	\$522,671,831	\$1,174,105	\$25,043,805	\$1,157,918,580	\$1,546,189,105	\$679,423,320	\$688,246,236	\$117,165,305	\$4,257,129	\$0	\$5,001,221	\$2,346,254	\$16,127,913	\$0	\$4,103,114	\$7,980,719	\$0	\$2,724,830	\$5,283,340,770
Other Party Liability	\$762,490	\$276,796	\$13,674,929	\$687,529	\$1,094,374	\$2,201,850	\$9,064,464	\$2,290,460	\$58,019,594	\$377,047	\$5,073	\$0	\$206,954	\$0	\$235,555	\$0	\$69,434	\$7,980,719	\$0	\$9,889	\$100,350,156
Invalid Data																					
Zero Allowed	\$6,380	\$87	\$0	\$0	\$0	\$62	\$13	\$0	\$184	\$3,580	(\$48)	\$0	(\$4,484)	\$0	\$7,953	\$0	\$0	\$0	\$0	\$0	\$13,727
Missing Membership	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Additional Non-Maryland Residents	\$624,293	\$130,796	\$1,606,537	\$671	\$49,732	\$1,031,359	\$1,440,657	\$469,317	\$772,309	\$9,833	\$102,583	\$0	\$3,488	\$0	\$3,202	\$0	(\$3,690)	\$0	\$0	\$1,802	\$6,242,889
Total Exclusions	\$912,362,304	\$81,570,333	\$1,503,796,525	\$29,213,269	\$57,995,685	\$1,354,397,242	\$1,981,814,797	\$794,747,887	\$1,283,248,550	\$180,081,494	\$3,797,617	\$0	\$5,629,496	\$3,900,475	\$12,478,474	\$0	\$2,786,155	\$12,845,682	\$0	\$2,087,446	\$8,222,753,429
Final Included (2)	\$416,783,288	\$68,543,193	\$507,390,365	\$16,325,905	\$23,899,699	\$1,154,685,309	\$1,635,683,971	\$676,683,543	\$629,454,149	\$113,381,845	\$4,149,521	\$0	\$4,795,263	\$2,346,254	\$15,881,203	\$0	\$4,037,370	\$0	\$0	\$2,713,139	\$5,176,733,997
Final Included - Individual Only	\$6,319,024	\$0	\$0	\$0	\$0	\$50,769,065	\$139,162,497	\$85,923,207	\$0	\$0	\$4,149,521	\$0	\$4,795,263	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$821,118,577
Final Included - Commercial and ASO Only	\$410,464,244	\$68,543,193	\$496,406,622	\$16,310,844	\$23,368,254	\$1,103,916,244	\$1,396,521,474	\$590,740,336	\$629,454,149	\$113,381,845	\$0	\$0	\$2,346,254	\$0	\$15,881,203	\$0	\$4,037,370	\$0	\$0	\$2,713,139	\$4,345,085,172
Unknown LOB	\$0	\$0	\$11,983,743	\$15,061	\$531,445	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$12,530,249
% Included of 2022 Total Medical	46.3%	72.8%	40.7%	65.0%	53.4%	80.3%	68.2%	68.9%	57.3%	57.6%	69.5%	0.0%	78.9%	45.4%	71.4%	0.0%	83.8%	0.0%	0.0%	81.0%	62.1%
Included Member Months	1,548,122	209,806	1,639,094	77,424	92,719	4,445,523	3,479,034	1,382,181	1,599,545	328,346	19,695	0	60,842	7,645	47,796	0	23,909	32,646	0	13,344	15,007,671
Included PMPH	\$269,22	\$326.70	\$399.56	\$210.96	\$257.76	\$259.74	\$441.41	\$489.56	\$393.52	\$345.31	\$210.69	\$0.00	\$78.82	\$306.90	\$332.21	\$0.00	\$168.86	\$0.00	\$0.00	\$263.32	\$344.94

Notes:
 1) We are excluding FEHB members which are members with market_segment = 6.
 2) These are the data that Milliman will be using for commercial benchmarking. We are only processing medical claims.

Appendix C - Exhibit 1a
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
Maryland APCD: Incurred 1/2022 through 12/2022, Paid through 3/2023 (Adjusted to Estimated Ultimate Incurred)
Summary of Experience by Maryland Region
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs, Includes Secondary Professional Diagnoses)

- (1) Risk Score is calculated based on Medical eligibility with valid risk scores, i.e. the risk score shown equals total risk score over total Medical.
- (2) Completion factors used: 0.9813. Risk adjusted allowed dollars are risk normalized to the statewide Maryland risk score of 1.62523.
- (3) The plan benefit factors for the total amounts are calculated based on the combined coinsurance level.
- (4) Teaching hospital amounts are removed from Inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (trended to FY2022 with an annual rate 2.75% based on the file "IME for ICC.xlsx") at the provider level from file we received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GME 12-09.xlsx". For benchmark results, this adjustment was made at the MSA level.

Region Name	Member Months and Risk		Total Allowed (2)						Allowed PMPM (2)				Total - Risk Adjusted	Total - Risk & Benefit Adjusted (3)
	Medical MMs	2017 HHS Model Platinum Risk Score (1)	Inpatient	Teaching Adjustment (4)	Inpatient w/ Teaching Adjustment	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total		
Total - All Regions	15,007,671	1.625	\$1,117,969,025	\$59,388,454	\$1,058,580,571	\$1,524,859,871	\$3,302,247,355	\$5,885,687,797	\$70.54	\$101.61	\$220.04	\$392.18	\$392.18	\$377.94
MD1 MD1 (Southern MD)	2,453,577	1.733	\$197,573,568	\$9,196,135	\$188,377,433	\$252,415,791	\$524,039,210	\$964,832,434	\$76.78	\$102.88	\$213.58	\$393.24	\$368.86	\$353.54
MD2 MD2 (Western MD)	582,775	1.800	\$46,633,562	\$1,469,150	\$45,164,412	\$72,288,956	\$116,653,492	\$234,106,860	\$77.50	\$124.04	\$200.17	\$401.71	\$362.72	\$348.20
MD3 MD3 (Eastern Shore)	973,640	1.685	\$74,153,839	\$3,118,053	\$71,035,785	\$111,970,079	\$197,802,578	\$380,808,442	\$72.96	\$115.00	\$203.16	\$391.12	\$377.19	\$364.56
MD4 MD4 (Northern DC Suburbs)	3,617,634	1.491	\$237,237,583	\$9,262,333	\$227,975,249	\$296,257,848	\$886,178,259	\$1,410,411,356	\$63.02	\$81.89	\$244.96	\$389.87	\$424.84	\$411.45
MD5 MD5 (Baltimore Area)	7,380,045	1.633	\$562,370,473	\$36,342,782	\$526,027,691	\$791,927,198	\$1,577,573,816	\$2,895,528,705	\$71.28	\$107.31	\$213.76	\$392.35	\$390.39	\$375.97

Appendix C - Exhibit 1b
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
Maryland APCD: Incurred 1/2022 through 12/2022, Paid through 3/2023 (Adjusted to Estimated Ultimate Incurred)
Plan Benefit Normalization Factors by Maryland Region
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs, Includes Secondary Professional Diagnoses)

- (1) Linearly interpolated between coinsurance ranges.
- (2) Risk adjusted amounts are normalized to all of Maryland, which has a 2017 HHS Platinum risk score of 1.62523.
- (3) Risk adjusted and benefit adjusted amounts are calculated as (risk adjusted amount) / (benefit normalization factor).
- (4) Teaching hospital amounts are removed from Inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (trended to FY2022 with an annual rate 2.75% based on the file "IME for ICC.xlsx") at the provider level from file received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GME 12-09.xlsx". For benchmark results, this adjustment was made at the MSA level.

Region Name	Member Months, Risk, and Plan Coinsurance			RVU Plan Benefit Normalization Factors (1)			Allowed Plan Benefit Normalization Factors (1)			Allowed PMPM				Risk Adjusted Allowed PMPM (2)				Risk Adjusted and Benefit Adjusted Allowed PMPM (2) (3)			
	Medical MMs	2017 HHS Model Platinum Risk Score		Inpatient	Outpatient	Prof / Other	Inpatient	Outpatient	Prof / Other	Inpatient (4)	Outpatient	Prof / Other	Total	Inpatient (4)	Outpatient	Prof / Other	Total	Inpatient (4)	Outpatient	Prof / Other	Total
		Risk Score	Plan Coinsurance Range																		
Total - All Regions	15,007,671	1.625	85%-95%	1.037	1.033	1.027	1.044	1.032	1.039	\$70.54	\$101.61	\$220.04	\$392.18	\$70.54	\$101.61	\$220.04	\$392.18	\$67.58	\$98.49	\$211.86	\$377.94
MD1 MD1 (Southern MD)	2,453,577	1.733	85%-95%	1.041	1.038	1.031	1.051	1.036	1.044	\$76.78	\$102.88	\$213.58	\$393.24	\$72.02	\$96.50	\$200.34	\$368.86	\$68.51	\$93.19	\$191.85	\$353.54
MD2 MD2 (Western MD)	582,775	1.800	85%-95%	1.040	1.037	1.030	1.050	1.035	1.043	\$77.50	\$124.04	\$200.17	\$401.71	\$69.98	\$112.00	\$180.74	\$362.72	\$66.67	\$108.25	\$173.28	\$348.20
MD3 MD3 (Eastern Shore)	973,640	1.685	85%-95%	1.034	1.030	1.024	1.040	1.030	1.036	\$72.96	\$115.00	\$203.16	\$391.12	\$70.36	\$110.91	\$195.92	\$377.19	\$67.67	\$107.72	\$189.18	\$364.56
MD4 MD4 (Northern DC Suburbs)	3,617,634	1.491	85%-95%	1.032	1.028	1.023	1.036	1.028	1.033	\$63.02	\$81.89	\$244.96	\$389.87	\$68.67	\$89.24	\$266.93	\$424.84	\$66.26	\$86.82	\$258.38	\$411.45
MD5 MD5 (Baltimore Area)	7,380,045	1.633	85%-95%	1.037	1.034	1.027	1.045	1.032	1.039	\$71.28	\$107.31	\$213.76	\$392.35	\$70.92	\$106.77	\$212.69	\$390.39	\$67.88	\$103.44	\$204.64	\$375.97

Appendix C - Exhibit 2a
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
Maryland APCD: Incurred 1/2022 through 12/2022, Paid through 3/2023 (Adjusted to Estimated Ultimate Incurred)
Summary of Experience by PSAP
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs, Includes Secondary Professional Diagnoses)

- (1) Risk Score is calculated based on Medical eligibility with valid risk scores, i.e., the risk score shown equals total risk score over total Medical.
- (2) Completion factors used: 0.9813. Risk adjusted allowed dollars are risk normalized to the all Maryland risk score of 1.62523.
- (3) The plan benefit factors for the total amounts are calculated based on the combined coinsurance level.
- (4) Teaching hospital amounts are removed from Inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (trended to FY2022 with an annual rate 2.75% based on the file "IME for ICC.xlsx") at the provider level from file we received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GME 12-09.xlsx". For benchmark results, this adjustment was made at the MSA level.
- (5) Cost and utilization data are aggregated for each hospital's Primary Service Area Plus (PSAP). The hospital PSAP is based on the ZIP Code and hospital share mapping provided by HSCRC from file named "All payer and Medicare PSAP 4.2.2019.xlsx". For each hospital's PSAP, the cost and utilization values are calculated as the sum of the PSAP ZIP Codes of (cost or utilization value at the ZIP Code) x (hospital percent share at the ZIP Code).

Hospital Name and Medicare ID (5)	Member Months and Risk		Total Allowed (2)						Allowed PMPM (2)				Total - Risk & Benefit	
	Medical MMs	2017 HHS Model Platinum Risk Score (1)	Inpatient	Teaching Adjustment (4)	Inpatient w/ Teaching Adjustment	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Total - Risk Adjusted	Benefit Adjusted (3)
Total - All PSAPs	15,007,027	1.625	\$1,117,959,235	\$59,388,454	\$1,058,570,781	\$1,524,848,082	\$3,302,147,062	\$5,885,565,925	\$70.54	\$101.61	\$220.04	\$392.19	\$392.18	\$377.94
210023 ANNE ARUNDEL	1,038,623	1.502	\$63,045,369	\$3,233,770	59,811,599	\$87,744,140	\$214,633,517	\$362,189,256	\$57.59	\$84.48	\$206.65	\$348.72	\$377.21	\$366.50
210061 ATLANTIC GENERAL	70,561	1.588	\$4,891,801	\$238,563	4,653,238	\$7,694,008	\$12,551,245	\$24,898,491	\$65.95	\$109.04	\$177.88	\$352.87	\$361.24	\$356.66
210043 BALTIMORE WASHINGTON	736,268	1.674	\$57,038,478	\$2,912,675	54,125,803	\$67,797,063	\$153,495,305	\$275,418,171	\$73.51	\$92.08	\$208.48	\$374.07	\$363.21	\$349.44
210013 BON SECOURS	22,497	2.076	\$2,201,083	\$204,533	1,996,550	\$3,473,871	\$4,395,507	\$9,865,928	\$88.75	\$154.42	\$195.38	\$438.55	\$343.38	\$327.36
210039 CALVERT	283,281	1.719	\$23,847,641	\$1,349,927	22,497,715	\$29,227,477	\$59,213,192	\$110,938,383	\$79.42	\$103.17	\$209.03	\$391.62	\$370.35	\$353.82
210033 CARROLL COUNTY	649,210	1.535	\$45,562,878	\$2,262,180	43,300,698	\$63,709,436	\$137,281,663	\$244,281,797	\$66.70	\$98.13	\$211.46	\$376.29	\$398.41	\$384.69
210035 CHARLES REGIONAL	359,176	1.704	\$29,958,475	\$1,320,652	28,637,823	\$38,514,605	\$80,999,716	\$148,152,144	\$79.73	\$107.23	\$225.52	\$412.48	\$393.44	\$376.19
210030 CHESTERTOWN	84,067	1.532	\$6,606,350	\$289,865	6,316,485	\$12,079,097	\$15,658,054	\$34,053,636	\$75.14	\$143.68	\$186.26	\$405.08	\$429.71	\$414.02
210051 DOCTORS COMMUNITY	368,529	1.777	\$29,210,943	\$1,441,912	27,769,031	\$34,949,238	\$78,693,763	\$141,412,032	\$75.35	\$94.83	\$213.53	\$383.72	\$350.87	\$335.83
210037 EASTON	314,753	1.689	\$25,528,469	\$1,131,964	24,396,505	\$41,689,621	\$68,631,694	\$134,717,820	\$77.51	\$132.45	\$218.05	\$428.01	\$411.82	\$396.09
210015 FRANKLIN SQUARE	327,561	1.874	\$31,734,542	\$2,217,047	29,517,495	\$40,215,338	\$77,634,972	\$147,367,805	\$90.11	\$122.77	\$237.01	\$449.89	\$390.26	\$372.50
210005 FREDERICK MEMORIAL	948,435	1.530	\$61,728,577	\$2,350,526	59,378,051	\$71,281,592	\$227,112,103	\$357,771,746	\$62.61	\$75.16	\$239.46	\$377.22	\$400.64	\$387.01
210060 FT. WASHINGTON	78,877	1.910	\$6,610,161	\$321,226	6,288,935	\$9,370,028	\$17,322,264	\$32,981,227	\$79.73	\$118.79	\$219.61	\$418.13	\$355.81	\$342.06
210044 G.B.M.C.	401,815	1.552	\$27,090,664	\$1,813,719	25,276,946	\$42,811,664	\$87,586,607	\$155,675,216	\$62.91	\$106.55	\$217.98	\$387.43	\$405.82	\$393.23
210017 GARRETT COUNTY	37,314	1.867	\$4,864,326	\$19,705	4,844,622	\$6,973,012	\$6,052,454	\$17,670,088	\$129.83	\$186.87	\$162.20	\$478.91	\$416.96	\$401.85
210056 GOOD SAMARITAN	175,980	2.002	\$16,671,269	\$1,204,680	15,466,590	\$25,186,828	\$39,715,295	\$80,368,713	\$87.89	\$143.12	\$225.68	\$456.69	\$370.66	\$352.58
210034 HARBOR	84,193	1.848	\$7,366,744	\$584,355	6,782,389	\$11,567,236	\$16,791,597	\$35,111,221	\$80.20	\$137.39	\$199.44	\$417.03	\$366.84	\$353.05
210006 HARFORD	96,407	1.709	\$7,765,889	\$383,827	7,382,062	\$11,065,973	\$20,552,820	\$39,000,555	\$76.57	\$114.78	\$213.19	\$404.55	\$384.74	\$371.92
210065 HC-GERMANTOWN	133,676	1.557	\$9,690,356	\$463,622	9,226,734	\$11,527,877	\$31,433,142	\$52,187,752	\$69.02	\$86.24	\$235.14	\$390.41	\$407.42	\$393.21
210004 HOLY CROSS	662,294	1.509	\$43,663,958	\$1,790,174	41,873,783	\$53,251,590	\$154,772,550	\$249,897,923	\$63.23	\$80.40	\$233.69	\$377.32	\$406.49	\$392.32
210029 HOPKINS BAYVIEW MED CTR	137,247	1.824	\$11,876,540	\$887,455	10,989,085	\$18,066,806	\$29,025,089	\$58,070,980	\$80.07	\$131.56	\$211.48	\$423.11	\$377.08	\$363.17
210048 HOWARD COUNTY	895,067	1.485	\$57,750,323	\$4,571,116	53,179,207	\$77,275,531	\$197,626,398	\$328,081,135	\$59.41	\$86.33	\$220.80	\$366.54	\$401.18	\$387.04
210009 JOHNS HOPKINS	156,869	1.727	\$13,719,703	\$1,106,575	12,613,128	\$21,475,899	\$32,178,746	\$66,267,773	\$80.41	\$136.90	\$205.13	\$422.44	\$397.60	\$383.99
210055 LAUREL REGIONAL	0	0.000	\$0	\$0	0	\$0	\$0	\$0	\$0.00	\$0.00	\$0.00	\$0.00	n/a	\$0.00
210064 LEVINDALE	80	1.762	\$7,479	\$533	6,946	\$10,035	\$18,759	\$35,740	\$86.99	\$125.69	\$234.95	\$447.63	\$412.92	\$395.80
210045 MCCREADY	8,117	2.125	\$550,555	\$24,943	525,612	\$1,133,272	\$1,654,642	\$3,313,526	\$64.75	\$139.62	\$203.85	\$408.22	\$312.17	\$297.70
210008 MERCY	170,129	1.910	\$16,032,227	\$1,345,245	14,686,982	\$23,964,458	\$35,626,902	\$74,278,342	\$86.33	\$140.86	\$209.41	\$436.60	\$371.60	\$355.01
210001 MERITUS	383,125	1.726	\$27,203,331	\$1,280,194	25,923,137	\$38,729,857	\$83,016,842	\$147,669,836	\$67.66	\$101.09	\$216.68	\$385.44	\$362.88	\$350.31
210018 MONTGOMERY GENERAL	242,440	1.552	\$17,577,195	\$679,619	16,897,576	\$22,574,150	\$61,919,200	\$101,390,926	\$69.70	\$93.11	\$255.40	\$418.21	\$437.86	\$420.97
210040 NORTHWEST	225,611	1.814	\$19,232,766	\$1,441,921	17,790,845	\$28,756,337	\$50,487,429	\$97,034,611	\$78.86	\$127.46	\$223.78	\$430.10	\$385.41	\$368.73
210019 PENINSULA REGIONAL	385,873	1.758	\$28,847,019	\$1,146,047	27,700,971	\$38,493,113	\$75,742,430	\$141,936,514	\$71.79	\$99.76	\$196.29	\$367.83	\$340.06	\$329.28
210003 PRINCE GEORGE	209,696	1.942	\$19,258,999	\$894,107	18,364,827	\$23,085,949	\$43,730,015	\$85,180,791	\$87.58	\$110.09	\$208.54	\$406.21	\$339.92	\$325.50
210057 SHADY GROVE	924,727	1.524	\$63,410,511	\$2,443,098	60,967,413	\$75,188,203	\$225,269,598	\$361,425,214	\$65.93	\$81.31	\$243.61	\$390.85	\$416.82	\$403.27
210012 SINAI	413,721	1.805	\$40,803,101	\$2,871,433	37,931,667	\$53,588,726	\$97,910,298	\$189,430,691	\$91.68	\$129.53	\$236.66	\$457.87	\$412.21	\$394.67
210062 SOUTHERN MARYLAND	348,946	1.795	\$27,988,978	\$1,193,455	26,795,523	\$38,639,504	\$71,912,845	\$137,347,872	\$76.79	\$110.73	\$206.09	\$393.61	\$356.44	\$341.01
210011 ST. AGNES	353,848	1.625	\$24,618,273	\$2,015,636	22,602,636	\$39,811,688	\$72,306,420	\$134,720,744	\$63.88	\$112.51	\$204.34	\$380.75	\$380.76	\$364.92
210028 ST. MARY	218,383	1.653	\$17,565,201	\$729,736	16,835,465	\$25,490,928	\$48,679,874	\$91,006,267	\$77.09	\$116.73	\$222.91	\$416.73	\$409.66	\$398.17
210022 SUBURBAN	719,484	1.358	\$42,435,821	\$1,617,835	40,817,987	\$63,704,845	\$183,656,239	\$288,179,071	\$56.73	\$88.54	\$255.26	\$400.54	\$479.43	\$469.11
210063 UM ST. JOSEPH	495,078	1.581	\$35,890,104	\$2,355,771	33,534,334	\$55,785,844	\$88,190,677	\$197,510,855	\$67.74	\$112.68	\$218.53	\$398.95	\$410.07	\$396.00
210038 UMMC MIDTOWN	45,726	1.901	\$4,462,454	\$390,922	4,071,532	\$6,363,335	\$9,175,941	\$19,610,808	\$89.04	\$139.16	\$200.67	\$428.88	\$366.64	\$349.23
210032 UNION HOSPITAL OF CECIL	191,991	1.593	\$17,227,041	\$456,877	16,770,164	\$25,335,096	\$32,504,802	\$74,610,062	\$87.35	\$131.96	\$169.30	\$388.61	\$396.48	\$385.41
210024 UNION MEMORIAL	191,890	1.807	\$15,770,935	\$1,309,222	14,461,713	\$25,566,986	\$44,202,408	\$84,231,107	\$75.36	\$133.24	\$230.35	\$438.96	\$394.75	\$378.42
210002 UNIVERSITY OF MARYLAND	97,353	1.776	\$8,288,447	\$782,486	7,505,960	\$12,513,917	\$18,196,609	\$38,216,486	\$77.10	\$128.54	\$186.91	\$392.55	\$359.17	\$343.97
210049 UPPER CHESAPEAKE HEALTH	700,871	1.533	\$53,599,839	\$2,674,153	50,925,686	\$72,010,917	\$147,302,785	\$270,239,388	\$72.66	\$102.74	\$210.17	\$385.58	\$408.90	\$394.06
210016 WASHINGTON ADVENTIST	450,265	1.606	\$33,893,042	\$1,461,055	32,431,987	\$39,948,633	\$98,673,347	\$171,053,967	\$72.03	\$88.72	\$219.15	\$379.90	\$384.56	\$369.04
210027 WESTERN MARYLAND	166,971	1.955	\$14,901,380	\$174,036	14,727,344	\$27,214,360	\$28,611,308	\$70,553,012	\$88.20	\$162.99	\$171.35	\$422.55	\$351.34	\$333.92

Appendix C - Exhibit 2b
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
Maryland APCD: Incurred 1/2022 through 12/2022, Paid through 3/2023 (Adjusted to Estimated Ultimate Incurred)
Plan Benefit Normalization Factors by PSAP
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs, Includes Secondary Professional Diagnoses)

- (1) Linearly interpolated between coinsurance ranges.
(2) Risk adjusted amounts are normalized to all of Maryland, which has a 2017 HHS Platinum risk score of 1.62523.
(3) Risk adjusted and benefit adjusted amounts are calculated as (risk adjusted amount) / (benefit normalization factor).
(4) Teaching hospital amounts are removed from Inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (trended to FY2022 with an annual rate 2.75% based on the file "IME for ICC.xlsx") at the provider level from file we received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GMC 12-09.xlsx". For benchmark results, this adjustment was made at the MSA level.
(5) Cost and utilization data are aggregated for each hospital's Primary Service Area Plus (PSAP). The hospital PSAP is based on the ZIP Code and hospital share mapping provided by HSCRC from file named "All payer and Medicare PSAP 4.2.2019.xlsx". For each hospital's PSAP, the cost and utilization values are calculated as the sum of the PSAP ZIP Codes of (cost / utilization value at the ZIP Code) x (hospital % share at the ZIP Code).

Hospital Name and Medicare ID (5)	Member Months, Risk, and Plan Coinsurance				RVU Plan Benefit Normalization Factors (1)			Allowed Plan Benefit Normalization Factors (1)			Allowed PMPM				Risk Adjusted Allowed PMPM (2)				Risk Adjusted and Benefit Adjusted Allowed PMPM (2) (3)			
	2017 HHS Model Platinum		Plan	Plan	Inpatient	Outpatient	Prof / Other	Inpatient	Outpatient	Prof / Other	Inpatient (4)	Outpatient	Prof / Other	Total	Inpatient (4)	Outpatient	Prof / Other	Total	Inpatient (4)	Outpatient	Prof / Other	Total
	Risk Score	Coinsurance	Coinsurance Range																			
Total - All PSAPs	15,007,027	1.625	88.7%	85%-95%	1.037	1.033	1.027	1.044	1.032	1.039	\$70.54	\$101.61	\$220.04	\$392.19	\$70.54	\$101.61	\$220.04	\$392.18	\$67.58	\$98.49	\$211.86	\$377.94
210023 ANNE ARUNDEL	1,038,623	1.502	87.3%	85%-95%	1.029	1.025	1.020	1.032	1.026	1.030	\$57.59	\$84.48	\$206.65	\$348.72	\$62.29	\$91.38	\$223.53	\$377.21	\$60.35	\$89.10	\$217.05	\$366.50
210061 ATLANTIC GENERAL	70,561	1.598	84.5%	75%-85%	1.015	1.011	1.008	1.010	1.014	1.013	\$65.95	\$109.04	\$177.88	\$352.87	\$67.51	\$111.63	\$182.10	\$361.24	\$66.85	\$110.07	\$179.74	\$356.66
210043 BALTIMORE WASHINGTON	736,268	1.674	89.0%	85%-95%	1.038	1.034	1.038	1.046	1.033	1.040	\$73.51	\$92.08	\$208.48	\$374.07	\$71.38	\$89.41	\$202.42	\$368.25	\$66.25	\$96.58	\$194.61	\$349.44
210013 BON SECOURS	22,497	2.078	91.1%	85%-95%	1.054	1.042	1.036	1.071	1.040	1.047	\$68.75	\$154.42	\$195.38	\$438.55	\$69.49	\$120.91	\$152.98	\$343.38	\$64.98	\$116.29	\$146.18	\$327.36
210039 CALVERT	283,281	1.719	90.4%	85%-95%	1.047	1.040	1.033	1.060	1.038	1.046	\$79.42	\$103.17	\$209.03	\$391.62	\$75.10	\$97.57	\$197.67	\$370.35	\$70.88	\$94.02	\$188.93	\$353.82
210033 CARROLL COUNTY	649,210	1.535	88.4%	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$66.70	\$98.13	\$211.46	\$376.29	\$70.62	\$103.90	\$223.89	\$398.41	\$67.84	\$100.85	\$216.00	\$384.69
210035 CHARLES REGIONAL	359,176	1.704	90.2%	85%-95%	1.045	1.040	1.033	1.057	1.037	1.046	\$79.73	\$107.23	\$225.52	\$412.48	\$76.05	\$102.28	\$215.10	\$393.44	\$71.98	\$98.60	\$205.60	\$376.19
210030 CHESTERTOWN	84,067	1.532	88.9%	85%-95%	1.037	1.034	1.027	1.045	1.032	1.039	\$75.14	\$143.68	\$186.26	\$405.08	\$79.71	\$152.42	\$195.58	\$429.71	\$76.28	\$147.66	\$190.08	\$414.02
210051 DOCTORS COMMUNITY	368,529	1.777	89.9%	85%-95%	1.043	1.039	1.032	1.053	1.036	1.046	\$75.35	\$94.83	\$213.53	\$383.72	\$68.90	\$86.71	\$195.25	\$350.87	\$65.43	\$83.66	\$186.73	\$335.83
210037 EASTON	314,753	1.689	89.2%	85%-95%	1.039	1.035	1.028	1.047	1.033	1.041	\$77.51	\$132.45	\$218.05	\$428.01	\$74.58	\$127.44	\$209.80	\$411.82	\$71.23	\$123.33	\$201.53	\$396.09
210015 FRANKLIN SQUARE	327,561	1.874	90.6%	85%-95%	1.049	1.041	1.034	1.064	1.039	1.046	\$90.11	\$122.77	\$237.01	\$449.89	\$78.17	\$106.50	\$205.59	\$390.26	\$73.47	\$102.55	\$196.48	\$372.50
210005 FREDERICK MEMORIAL	948,435	1.530	88.3%	85%-95%	1.034	1.030	1.024	1.040	1.030	1.036	\$62.61	\$75.16	\$239.46	\$377.22	\$66.49	\$79.82	\$254.33	\$400.64	\$63.94	\$77.52	\$245.55	\$387.01
210060 FT. WASHINGTON	78,877	1.910	89.2%	85%-95%	1.039	1.035	1.028	1.047	1.033	1.041	\$79.73	\$118.79	\$219.61	\$418.13	\$67.85	\$101.09	\$196.88	\$355.81	\$64.78	\$97.81	\$179.47	\$342.06
210044 G.B.M.C.	401,815	1.552	87.9%	85%-95%	1.032	1.028	1.022	1.036	1.028	1.033	\$62.91	\$106.55	\$217.98	\$387.43	\$65.89	\$111.60	\$228.33	\$405.82	\$63.59	\$108.59	\$221.05	\$393.23
210017 GARRETT COUNTY	37,314	1.867	88.8%	85%-95%	1.037	1.033	1.027	1.044	1.032	1.039	\$129.83	\$186.87	\$162.20	\$478.91	\$113.04	\$162.70	\$141.22	\$416.96	\$108.25	\$157.67	\$135.93	\$401.85
210056 GOOD SAMARITAN	175,980	2.002	91.6%	85%-95%	1.059	1.043	1.038	1.080	1.041	1.047	\$87.88	\$143.12	\$225.68	\$456.69	\$71.33	\$118.16	\$183.17	\$370.66	\$66.02	\$111.57	\$174.99	\$352.58
210034 HARBOR	84,193	1.848	89.1%	85%-95%	1.038	1.034	1.028	1.046	1.033	1.040	\$80.20	\$137.39	\$199.44	\$417.03	\$70.55	\$120.85	\$175.44	\$366.84	\$67.44	\$117.00	\$168.62	\$353.05
210006 HARFORD	96,407	1.709	88.2%	85%-95%	1.034	1.030	1.024	1.039	1.029	1.035	\$76.57	\$114.78	\$213.19	\$404.55	\$72.82	\$109.16	\$202.75	\$384.74	\$70.06	\$106.04	\$195.82	\$371.92
210065 HC-GERMANTOWN	133,676	1.557	88.4%	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$69.02	\$86.24	\$235.14	\$390.41	\$72.03	\$90.00	\$245.39	\$407.42	\$69.18	\$87.34	\$236.69	\$393.21
210004 HOLY CROSS	662,294	1.509	88.4%	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$63.23	\$80.40	\$233.69	\$377.32	\$68.11	\$86.62	\$251.76	\$406.49	\$65.42	\$84.07	\$242.84	\$392.32
210029 HOPKINS BAYVIEW MED CTR	137,247	1.824	88.9%	85%-95%	1.037	1.034	1.027	1.045	1.032	1.040	\$80.07	\$131.56	\$211.48	\$423.11	\$71.36	\$117.25	\$188.47	\$377.08	\$68.29	\$113.58	\$181.30	\$363.17
210048 HOWARD COUNTY	895,067	1.485	88.5%	85%-95%	1.036	1.032	1.026	1.042	1.031	1.037	\$59.41	\$86.33	\$220.80	\$366.54	\$65.03	\$94.49	\$241.66	\$401.18	\$62.41	\$91.67	\$232.97	\$387.04
210009 JOHNS HOPKINS	156,869	1.727	88.4%	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$60.41	\$136.90	\$205.13	\$422.44	\$75.68	\$128.55	\$193.07	\$397.60	\$72.69	\$125.06	\$186.24	\$383.99
210055 LAUREL REGIONAL	0	0.000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	\$0.00	\$0.00	\$0.00	\$0.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	\$0.00
210064 LEVINDALE	80	1.762	89.7%	85%-95%	1.042	1.038	1.031	1.051	1.036	1.044	\$86.99	\$125.69	\$234.95	\$447.63	\$80.25	\$115.94	\$216.73	\$412.92	\$76.32	\$111.95	\$207.52	\$395.80
210045 MCCREARY	8,117	2.125	91.2%	85%-95%	1.055	1.042	1.037	1.074	1.040	1.047	\$64.75	\$138.62	\$203.85	\$408.22	\$49.52	\$106.77	\$155.89	\$312.17	\$46.11	\$102.65	\$148.94	\$329.70
210008 MERCY	170,129	1.910	90.5%	85%-95%	1.048	1.041	1.034	1.062	1.038	1.046	\$86.33	\$140.86	\$209.41	\$436.60	\$73.48	\$119.89	\$178.24	\$371.60	\$69.19	\$115.48	\$170.34	\$355.01
210001 MERITUS	383,125	1.726	88.4%	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$67.66	\$101.09	\$216.68	\$385.44	\$63.70	\$95.17	\$204.00	\$362.88	\$61.18	\$92.37	\$196.77	\$350.31
210018 MONTGOMERY GENERAL	242,440	1.552	89.1%	85%-95%	1.039	1.035	1.028	1.047	1.033	1.041	\$69.70	\$93.11	\$255.40	\$418.21	\$72.97	\$97.49	\$267.40	\$437.86	\$69.71	\$94.35	\$256.90	\$420.97
210040 NORTHWEST	225,811	1.814	90.1%	85%-95%	1.044	1.040	1.032	1.056	1.037	1.046	\$78.86	\$127.46	\$223.78	\$430.10	\$70.66	\$114.22	\$200.53	\$385.41	\$66.93	\$110.12	\$191.67	\$368.73
210019 PENINSULA REGIONAL	385,873	1.758	87.9%	85%-95%	1.032	1.029	1.023	1.037	1.028	1.034	\$71.79	\$99.76	\$196.29	\$367.83	\$66.37	\$92.23	\$181.47	\$340.06	\$64.00	\$89.70	\$175.58	\$329.28
210003 PRINCE GEORGE	209,696	1.942	89.8%	85%-95%	1.042	1.039	1.031	1.053	1.036	1.045	\$87.58	\$110.09	\$208.54	\$406.21	\$73.29	\$92.13	\$174.51	\$339.92	\$69.63	\$88.91	\$166.96	\$325.50
210057 SHADY GROVE	924,727	1.524	88.0%	85%-95%	1.033	1.029	1.023	1.038	1.029	1.034	\$65.93	\$81.31	\$243.61	\$390.85	\$70.31	\$86.71	\$259.80	\$416.82	\$67.75	\$84.30	\$251.22	\$403.27
210012 SINAI	1,805	89.9%	85%-95%	1.043	1.039	1.032	1.053	1.036	1.046	1.053	\$91.68	\$129.53	\$236.66	\$457.87	\$82.54	\$116.61	\$213.06	\$412.21	\$78.39	\$112.51	\$203.77	\$394.67
210062 SOUTHERN MARYLAND	348,946	1.795	90.1%	85%-95%	1.044	1.040	1.032	1.055	1.037	1.046	\$76.79	\$110.73	\$206.09	\$393.61	\$69.54	\$100.28	\$186.62	\$356.44	\$65.92	\$96.70	\$178.39	\$341.01
210011 ST. AGNES	353,848	1.625	89.8%	85%-95%	1.042	1.038	1.031	1.052	1.036	1.045	\$63.88	\$112.51	\$204.34	\$380.73	\$63.88	\$112.52	\$204.36	\$380.76	\$60.72	\$108.61	\$195.58	\$364.92
210028 ST. MARY	218,383	1.653	87.3%	85%-95%	1.029	1.025	1.020	1.032	1.025	1.030	\$77.09	\$116.73	\$222.91	\$416.73	\$75.78	\$114.74	\$219.13	\$409.66	\$73.45	\$111.89	\$212.83	\$398.17
210022 SUBURBAN	719,484	1.358	86.1%	85%-95%	1.023	1.019	1.015	1.022	1.021	1.022	\$56.73	\$88.54	\$255.26	\$400.54	\$67.91	\$105.98	\$305.54	\$479.43	\$66.43	\$103.85	\$298.84	\$469.11
210063 UM ST. JOSEPH	495,078	1.581	88.4%	85%-95%	1.035	1.031	1.025	1.041	1.030	1.037	\$67.74	\$112.68	\$218.53	\$398.95	\$69.62	\$115.82	\$224.63	\$410.07	\$66.88	\$112.42	\$216.70	\$396.00
210038 UMMC MIDTOWN	45,726	1.901	91.2%	85%-95%	1.055	1.042	1.037	1.073	1.040	1.047	\$89.04	\$139.16	\$200.67	\$428.88	\$76.12	\$118.97	\$171.55	\$366.64	\$70.93	\$114.39	\$163.91	\$349.23
210032 UNION HOSPITAL OF CECIL	191,991	1.593	87.3%	85%-95%	1.029	1.025	1.020	1.032	1.02													

**Appendix C - Exhibit 3a
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
CHSD Claims Incurred 1/2022 through 12/2022 (Adjusted to Estimated Ultimate Incurred)
Summary of Experience by Maryland Region and MSA**

Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs, Includes Secondary Professional Diagnoses)

- (1) Risk Score is calculated based on Medical eligibility with valid risk scores, i.e. the risk score shown equals total risk score over total Medical.
- (2) Maryland regional benchmark totals are based on an average of the benchmark MSA results. The total across all MSAs is a member-weighted average across all MSAs used in the regional benchmarks.
- (3) Normalized to 2022 APCD data for all Maryland counties which has risk score of 1.62523.
- (4) Teaching hospital amounts are removed from Inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (trended to FY2022 with an annual rate of 2.75% based on the file "IME for ICC.xlsx") at the provider level from file we received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GME 12-09.xlsx". For benchmark results, this adjustment was made at the MSA level.

Member Months and Risk		Total Allowed(2)							Allowed PMPM (2)				RVUs PMPM (2)				Allowed Per RVU					
MSA	MSA Name (2)	Medical MMs	2017 HHS Model Platinum Risk Score (1)	Total Allowed(2)				Total - Risk Adjusted (3)	Allowed PMPM (2)				RVUs PMPM (2)				Allowed Per RVU					
				Inpatient	Teaching Hospital Adjustment (4)	Inpatient w/ Teaching Adjustment	Outpatient		Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total
All	All MSAs in this Exhibit	96,924,169	1.451						\$102.10	\$155.67	\$183.76	\$441.54	\$494.65	0.88	1.50	3.66	6.04	6.77	\$115.99	\$103.52	\$50.21	\$73.05
MD1	MD1 (Southern MD)	42,491,766	1.451						\$107.76	\$160.30	\$199.02	\$467.07	\$523.14	0.89	1.55	3.81	6.25	7.00	\$121.18	\$103.48	\$52.26	\$74.78
MD2	MD2 (Western MD)	6,792,417	1.496						\$107.12	\$156.44	\$160.75	\$424.31	\$460.88	0.99	1.69	3.56	6.24	6.77	\$108.30	\$92.58	\$45.18	\$68.03
MD3	MD3 (Eastern Shore)	7,487,131	1.501						\$110.20	\$164.82	\$167.57	\$442.60	\$479.19	0.99	1.69	3.69	6.37	6.89	\$111.05	\$97.68	\$45.44	\$69.51
MD4	MD4 (Northern DC Suburbs)	42,181,418	1.408						\$113.60	\$166.29	\$202.56	\$482.45	\$557.06	0.84	1.46	3.68	5.98	6.91	\$134.86	\$114.07	\$55.00	\$80.64
MD5	MD5 (Baltimore Area)	70,210,377	1.473						\$102.94	\$162.13	\$194.25	\$459.32	\$506.79	0.93	1.60	3.80	6.33	6.98	\$111.01	\$101.15	\$51.16	\$72.59

Appendix C - Exhibit 3b
CY 2022 Milliman Benchmark and Maryland All-Payer Claims Database Cost and Utilization Exhibits
CHSD Claims Incurred 1/2022 through 12/2022 (Adjusted to Estimated Ultimate Incurred)
Plan Benefit Normalization Factors by Maryland Region and MSA
Commercial and Individual LOBs, Limited to Members Under Age 65 (Excludes Prescription Drugs, Includes Secondary Professional Diagnoses)

- (1) Maryland regional benchmark totals are based on an average of the benchmark MSA results. The total across all MSAs is a member-weighted average across all MSAs used in the regional benchmarks.
- (2) Linearly interpolated between coinsurance ranges.
- (3) Risk adjusted amounts are normalized to all of Maryland, which has a 2017 HHS Platinum risk score of 1.62923.
- (4) Risk adjusted and benefit adjusted amounts are calculated as (risk adjusted amount) / (benefit normalization factor).
- (5) Teaching hospital amounts are removed from inpatient allowed and paid amounts (except SNF, newborn, and residential treatments) based on the FY2017 per diem rates (banded to FY2022 with an annual rate of 2.75% based on the file "IME for ICC.xlsx" at the received from Maryland HSCRC on 12/11/2019 named "Hospital file for commercial removal of GME 12-09.xlsx". For benchmark results, this adjustment was made at the MSA level.

MSA	MSA Name (1)	Risk and Plan Coinsurance			RVU Plan Benefit Normalization Factors (2)			Allowed Plan Benefit Normalization Factors (2)			Allowed PMPM				Risk Adjusted Allowed PMPM (3)				Risk Adjusted and Benefit Adjusted Allowed PMPM (3), (4)				RVU PMPM				Risk Adj RVU PMPM (3)				Risk Adjusted and Benefit Adjusted RVU PMPM (3), (4)			
		2017 HHS Model Platinum Risk Score	Plan Coinsurance	Plan Coinsurance Range	Inpatient	Outpatient	Prof / Other	Inpatient	Outpatient	Prof / Other	Inpatient (\$)	Outpatient	Prof / Other	Total	Inpatient (\$)	Outpatient	Prof / Other	Total	Inpatient (\$)	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total	Inpatient	Outpatient	Prof / Other	Total
All	All MSAs in this Exhibit	1.451			1.008	1.013	1.005	0.992	1.007	1.006	\$102.10	\$155.67	\$183.76	\$441.54	\$114.38	\$174.40	\$205.87	\$494.65	\$115.26	\$173.27	\$204.57	\$493.10	0.88	1.50	3.66	6.04	0.99	1.68	4.10	6.77	0.98	1.66	4.08	6.72
MD1	MD1 (Southern MD)	1.451			1.016	1.024	1.011	1.004	1.019	1.018	\$107.76	\$160.30	\$199.02	\$467.07	\$120.69	\$179.54	\$222.91	\$523.14	\$120.21	\$176.17	\$218.91	\$515.30	0.89	1.55	3.81	6.25	1.00	1.73	4.27	7.00	0.98	1.69	4.22	6.89
MD2	MD2 (Western MD)	1.496			1.004	1.010	1.004	0.981	1.005	1.000	\$107.12	\$156.44	\$160.75	\$424.31	\$116.38	\$169.92	\$174.60	\$460.88	\$116.57	\$169.10	\$174.57	\$462.24	0.99	1.69	3.56	6.24	1.07	1.84	3.86	6.77	1.07	1.82	3.85	6.74
MD3	MD3 (Eastern Shore)	1.501			1.010	1.015	1.005	0.988	1.008	1.002	\$110.20	\$164.82	\$167.57	\$442.60	\$119.32	\$178.45	\$181.43	\$475.19	\$120.75	\$177.10	\$181.07	\$478.92	0.99	1.69	3.69	6.37	1.07	1.83	3.99	6.89	1.09	1.80	3.97	6.93
MD4	MD4 (Northern DC Suburbs)	1.408			1.022	1.031	1.024	1.010	1.016	1.029	\$113.60	\$166.29	\$202.56	\$482.45	\$131.17	\$192.01	\$233.88	\$557.06	\$129.92	\$188.95	\$227.20	\$546.08	0.84	1.46	3.68	5.98	0.97	1.68	4.25	6.91	0.95	1.63	4.15	6.74
MD5	MD5 (Baltimore Area)	1.473			1.036	1.029	1.017	1.026	1.023	1.024	\$102.94	\$162.13	\$194.25	\$459.32	\$113.58	\$178.68	\$214.33	\$506.79	\$110.66	\$174.90	\$209.37	\$494.96	0.93	1.60	3.80	6.33	1.02	1.77	4.19	6.98	0.99	1.72	4.12	6.83